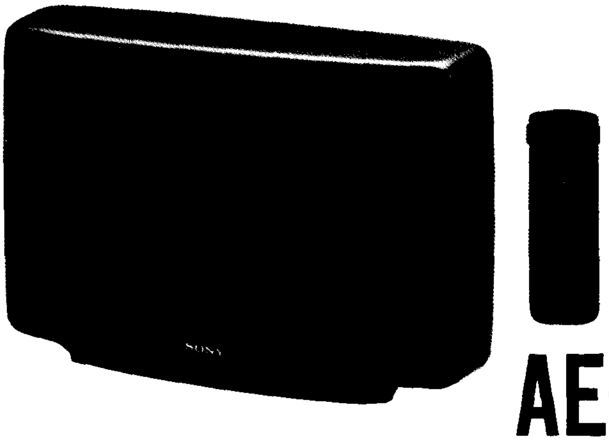
KV-C2163E/C2563E/C2963E
RM-816

SERVICE MANUAL

Spanish Model
KV-C 2163 E
Chassis No. SCC-F 12 J-A
KV-C 2563 E
Chassis No. SCC-F 12 D-A
KV-C 2963 E
Chassis No. SCC-F 12 C-A



AE-1C CHASSIS

MODELS OF THE SAME SERIES	
KV-C2163 E/C2563 E/C2963 E	
KV-C2553E/C2953E	
KV-X2553E/X2953E	

SPECIFICATIONS

【KV-C 2163 E, KV-C 2563 E, KV-C 2963 E】

Television system	B/G/H
Color system	PAL, SECAM, NTSC3.58, NTSC4.43
Stereo system	GERMAN/NICAM stereo
Channel coverage	VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S 01-S 05, M 1-M 10, U 1-U 10
Picture tube	HI-Black Trinitron tube Approx. 54.5 cm (21 inches) (KV-C 2163 E) (Approx. 51 cm picture measured diagonally) 100° degree deflection Approx. 63.5 cm (25 inches) (KV-C 2563 E) (Approx. 59 cm picture measured diagonally) 110° degree deflection Approx. 72.4 cm (29 inches) (KV-C 2963 E) (Approx. 68 cm picture measured diagonally) 110° degree deflection

Inputs / Outputs Terminals

REAR

→⊖1 21 pin Euro connector (CENELEC standard)	-Inputs for audio and video signals -Inputs for RGB -Outputs of TV video and audio signals
⊖→2/→⊖2 21-pin Euro connector	-Inputs for audio and video signals -Inputs for S-video -Outputs for video and audio signals (selectable)
⊖→ Audio output(vartable)	-phono jacks

FRONT

→⊖ Video input phono jack
→⊖ Audio inputs (L,R) phono jacks
S-video Inputs-4 pin DIN
Headphone jack : stereo mini jack

-Continued no next page-

TRINITRON® COLOR TV
SONY®

MICROFILM

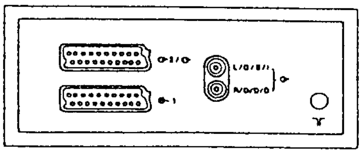
Sound output	15 W + 15 W
Power consumption	87 Wh (KV-C2163E) 101 Wh (KV-C2563E) 108 Wh (KV-C2963E)
Dimensions	Approx. 645×433×495 mm (w/h/d) (KV-C2163E) Approx. 720×497×480 mm (w/h/d) (KV-C2563E) Approx. 814×558×508 mm (w/h/d) (KV-C2963E)
Weight	Approx. 25kg (KV-C2163E) Approx. 38kg (KV-C2563E) Approx. 52kg (KV-C2963E)
Supplied accessories	RM-816 Remote Commander (1) IEC designation R6 batteries (2)

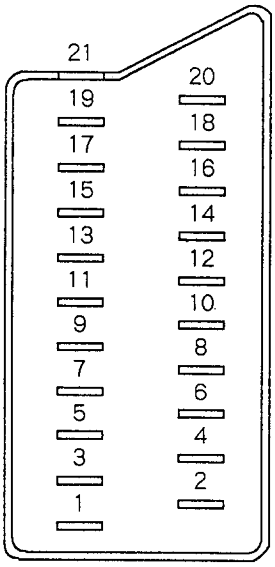
【RM-816】

Remote control system	infrared control
Power requirements	3V dc 2 batteries IEC designation R6 (size AA)
Dimentions	Approx. 75×221×23mm(w/h/d)
Weight	Approx. 230g (including batters)
Accessories supplied	IEC designation R6 batteries (2)

Design and specifications are subject to change without notice.

21 pin connector (1 2)





Pin No	1	2	4	Signal	Signal level
1	○	○	○	Audio output B (right)	Standard level : 0.5Vrms Output impedance : Less than 1kohm *
2	○	○	○	Audio input B (right)	Standard level : 0.5Vrms Input impedance : More than 10kohms *
3	○	○	○	Audio output A (left)	Standard level : 0.5Vrms Output impedance : Less than 1kohm *
4	○	○	○	Ground (audio)	
5	○	○	○	Ground (blue)	
6	○	○	○	Audio input A (left)	Standard level : 0.5Vrms Input impedance : More than 10kohms *
7	○	●	●	Blue input	0.7 ± 3dB, 75ohms, positive
8	○	○	○	Function select (AV control)	High state (9.5 – 12V) : Part mode Low state (0 – 2V) : TV mode Input impedance : More than 10kohms Input capacitance : Less than 2nF
9	○	○	○	Ground (green)	
10	○	○	○	Open	
11	○	●	●	Green	Green signal : 0.7V ± 3dB, 75ohms, positive
12	○	○	○	Open	
13	○	○	○	Ground (red)	
14	○	○	○	Ground (blanking)	
15	○	–	–	Red input	0.7V ± 3dB, 75ohms, positive
	–	○	○	(S signal) croma input	0.3V ± 3dB, 75ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1 – 3V) Low state (0 – 0.4V) Input impedance : 75ohms
17	○	○	○	Ground (video output)	
18	○	○	○	Ground (video input)	
19	○	○	○	Video output	1V ± 3dB, 75ohms, positive Sync : 0.3V (– 3, +
20	○	–	–	Video input	1V ± 3dB, 75ohms, positive Sync : 0.3V (– 3, +
	–	○	○	Video Input/Y (S signal)	1V ± 3dB, 75ohms, positive Sync : 0.3V (– 3, + 10dB)
21	○	○	○	Common ground (plug, shield)	

○ Connected ● unconnected (open) * at 20Hz – 20kHz

4 Pin connector ()

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75ohm, positive Sync $0.3\text{V}\,^{-3}_{+10}$ dB
4	C (S signal) input	0.3V ± 3dB 75ohm, positive

TABLE OF CONTENTS

Section Title Page

1. GENERAL

1-1. Switching On / Off ········· 4
1-2. Presetting ········· 4
1-3. Basic TV Operation ········· 6
1-4. Advanced TV Operation ········· 7
1-5. Teletext Operation ········· 8
1-6. Optional Connections / Operations ········· 9

2. DISASSEMBLY

2-1-1. Rear Cover Removal (21inch) ········· 10
2-1-2. Rear Cover Removal (25inch, 29inch) ········· 10
2-2-1. Chassis Assembly Removal (21inch) ········· 10
2-2-2. Chassis Assembly Removal (25inch, 29inch) ········· 10
2-3. A, A1 and J1 Boards Removal ········· 11
2-4. B and V Boards Removal ········· 11
2-5-1. Service Position (21inch) ········· 12
2-5-2. Service Position (25inch, 29inch) ········· 12
2-6-1. Picture Tube Removal (21inch) ········· 13
2-6-2. Picture Tube Removal (25inch, 29inch) ········· 14

3. SET-UP ADJUSTMENTS

(21inch, 25inch)

3-1. Beam Landing ········· 15
3-2. Convergence ········· 16
3-3. Focus ········· 18
3-4. Screen (G2) and White Balance ········· 18

(29inch)

3-5. Beam Landing ········· 20
3-6. Convergence ········· 21
3-7. Focus ········· 23
3-8. White Balance ········· 23

Section Title Page

4. CIRCUIT ADJUSTMENTS

4-1. A Board Adjustments ········· 24
4-2. B Board Adjustments ········· 24
4-3. D Board Adjustments ········· 25
4-4. J1 Board Adjustments ········· 26
4-5. V Board Adjustment ········· 26
4-6. A1 Board Adjustments ········· 26
4-7. Secondary Adjustments ········· 27

5. DIAGRAMS

5-1. Block Diagram ········· 29
5-2. Circuit Boards Location ········· 35
5-3. Schematic Diagrams and Printed Wiring Boards ········· 35
5-4. Semiconductors ········· 66

6. EXPLODED VIEWS

6-1. Chassis (KV-C2163E) ········· 68
6-2. Picture Tube (KV-C2163E) ········· 69
6-3. Chassis (KV-C2563E/KV-C2963E) ········· 70
6-4. Picture Tube (KV-C2563E/KV-C2963E) ········· 71
7. ELECTRICAL PARTS LIST ········· 72

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

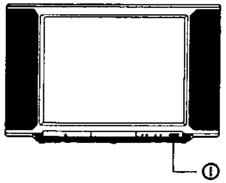
SAFETY-RELATED COMPONENT WARNING !!

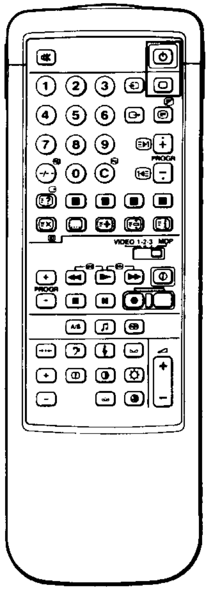
COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
GENERAL

1-1. SWITCHING ON/OFF

After you have completed the basic preparation your TV is ready to be connected to the mains power supply (220/240V AC, 50Hz).





How to turn the TV on

Action	Result
Press ⏻ on the TV.	The TV will turn on. **Note:** If the screen remains blank, the TV may be in the standby mode. Press ○ or any number button on the commander to switch it on.

How to turn the TV off

A Temporarily	
Press ⏼ to enter standby mode.	The TV will be in standby. To return to the TV mode press ○
B Completely	
Press ⏻ on the TV.	The TV will turn off.

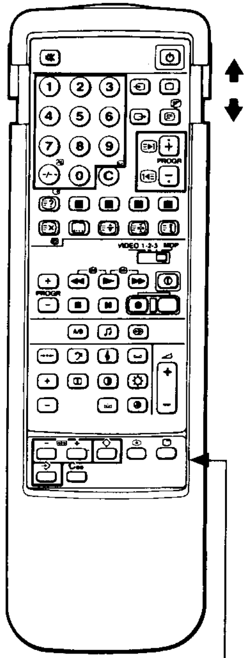
1-2. PRESETTING

After you have installed this TV you need to preset TV channels.

TV stations broadcast their channels at certain frequencies. You must preset these channels to programme numbers on this TV before you can watch the TV programmes.

There are 60 spaces for storing these channels.

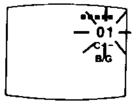
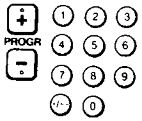
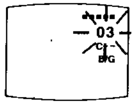
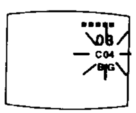
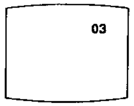
Slide open the full function side of the remote commander to reveal preset buttons.

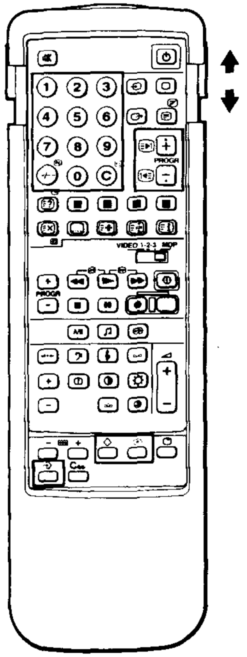


Note: These buttons should be used in preset mode only.

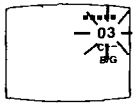
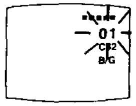
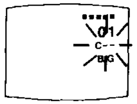
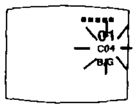
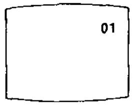
How to preset channels automatically

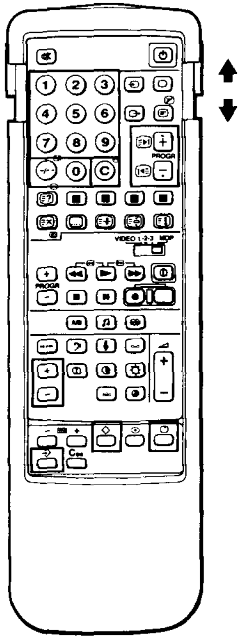
If you are unfamiliar with the channel numbers of the stations you wish to preset, use "How to preset channels automatically". If you are familiar with the channel numbers refer to "How to preset T.V. channels directly".

Action	Result
1 Press ⇨ to enter the preset mode.	 The programme number will start flashing.
2 Press PROGR + or - or the number buttons to select the programme number to which you want to preset channels.  **Note** To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	 The programme number changes
3 Press ⊞ + or - once to search forward or backward for channels.	 When a channel is tuned in, the search will stop. **Note** If you want to skip a channel, press ⊞ + or ⊞ -.
4 Press ◇ if you want to store the channel which is tuned in. Press ⇨ to exit preset mode without storing.	 The channel is now stored and you have returned to TV mode.
5 Repeat steps 1 to 4 to store the other channels.	



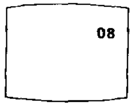
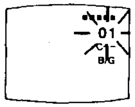
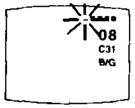
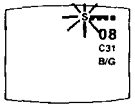
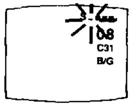
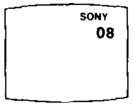
How to preset channels directly

Action	Result
1 Press ⇨ to enter the preset mode.	 The programme number will start flashing.
2 Press PROGR +/– or the number buttons to select the programme number on which you want to preset a channel. **Note** To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	 The programme number changes.
3 Press C. If you want to select a cable channel, press C twice.	 The indication "C--" ("S--" for a cable channel) starts flashing on the display.
4 Select the channel number with two digits (e.g. 04) by pressing the number buttons. **Note** Press the second number within 5 seconds after the first one, otherwise the operation will be cancelled.	 The channel number changes. **Note** If you have made a mistake the letter "X" will appear. Repeat step 4 again.
5 Press ◇ to store the channel which is tuned in. Press ⇨ to exit the preset mode without storing.	 The channel is now stored and you have returned to TV mode.
Repeat steps 1 to 5 to store the other channels.	



How to Name a Station

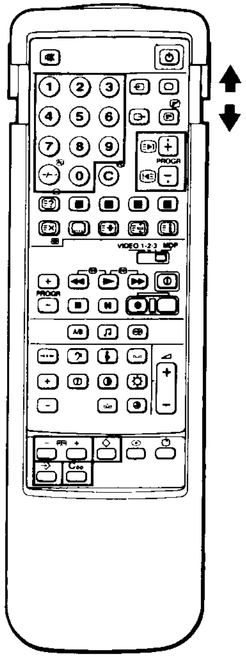
You can use up to five characters to "name" a channel or station (i.e. BBC1).

Action	Result
1 Select a programme number you want to name by pressing the PROGR +/– or the number buttons	 The selected programme number will appear.
2 Press ⇨.	 The programme number starts flashing.
3 Press ▢.	 The first column of the station name indication will start flashing.
4 Press + or – to select a letter in the alphabet, a number, or a blank space.	 The letters of the alphabet, numbers and the space ("–") will appear sequentially.
5 Press ▢.	 The first character is now set and the second column will start flashing.
6 Repeat steps 4 and 5 to set each letter.	
7 Press ◇.	 The channel name is now stored and you have returned to TV mode.

How to tune in a channel temporarily

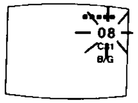
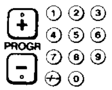
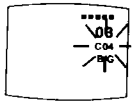
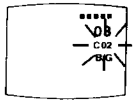
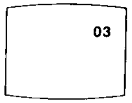
You can tune a channel in temporarily, if it has not been preset.

Action	Result
1 Press C. For cable channels, press C twice.	The indication "C" ("S" for cable channels) appears on the screen.
2 Select the channel number with two digits by pressing the number buttons (e.g. for channel 4, first press 0, then 4.)	The channel is received, but it is not stored to any programme number.



How to Skip Programmes

Using the PROGR +/– buttons you can skip unused programme channel numbers. However, the skipped numbers may still be called up using the number buttons.

Action	Result
1 Press ⇾ to enter the preset mode.	 The programme number will start flashing.
2 Select the programme number that you want to skip by pressing PROGR +/– or the number buttons. 	 The programme number changes.
3 Press Coo.	 The lowest channel number appears under the programme number.
4 Press ◇.	 The channel is now stored and you have returned to TV mode.
Repeat steps 1 to 4 to skip other programme numbers.	

How to Fine Tune Manually

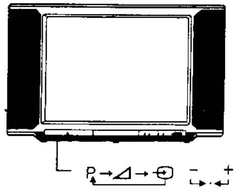
If the picture is distorted, you can fine tune the channel manually.

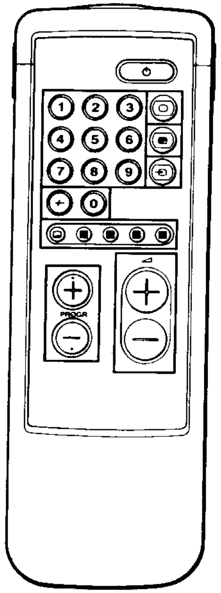
Action	Result
Press ⊞ + or – repeatedly until the picture looks normal.	The indication ← F → appears on the screen.
Press ⇾ to enter the preset mode.	The programme number starts flashing.
Press ◇.	The fine tuning is stored.

Note: The automatic fine tuning will function again when you preset the channel once more.

1-3. BASIC TV OPERATION

Note: Press ⊥ on door to open.

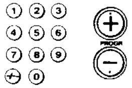
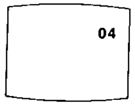




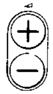
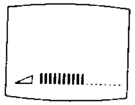
This section introduces you to the basic control functions which are available on the simple side of the remote commander.

How to Select Programmes

Before you can select programmes make sure that you have preset channels.

Action	Result
Press PROGR +/– or the number buttons. To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3. 	 The selected programme is displayed.

How to Adjust the Volume

Action	Result
Press ⊿ + or –. 	 The volume markers will appear.

How to Use Additional Functions

How to operate with the buttons on the TV

You can also select programmes and adjust the volume using the P→⊿→⊕ and →•← +/– buttons on the front of the TV.
For operation, first press the P→⊿→⊕ button repeatedly so that the P (for programme) or ⊿ (for volume) indication appears on the screen, and then adjust with the →•← +/– buttons.

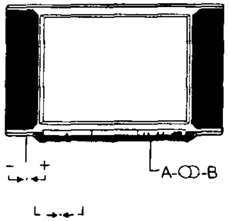
How to view the teletext

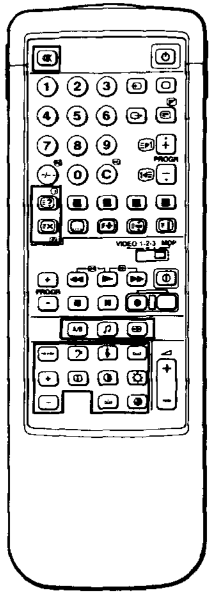
Press ⊜. To return to the TV mode, press ▢.
For details about the teletext operation.

How to view the video input picture

Press ⊕ To return to the TV mode, press ▢. For further details.

1-4. ADVANCED TV OPERATION





This section shows you how to use convenient features and how to adjust the picture and sound to your taste.
Use the full-function side of the Remote Commander.

How to use on-screen display and special sound features

You can enjoy the following convenient features.

How to	Action	To resume normal picture/sound
Display on-screen indications	Press ⊕	Indications disappear after some seconds
Display programme numbers	Press ⊕ twice	Press ⊕ twice again.
Mute the sound	Press 🔇.	Press 🔇 again.
Select a language in bilingual programmes.	Press A/B. The selected mode of the A-CD-B indicator on the TV lights up.	Press A/B.
Set the sound to music listening position	Press ♫.	Press ♫ again.
Use the space sound (special acoustic effect)	Press ⊜	Press ⊜ again.
Request the time	Press ◷.	Press ◷ again.

How to adjust the picture and sound

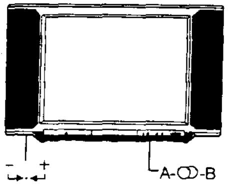
Although the picture and sound have been adjusted at the factory, you might want to adjust them to your own taste. To do this, please follow the steps.

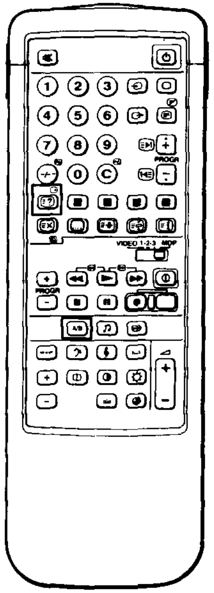
For picture adjustment

To Adjust:	Press:	Then:	Result: (+ ⟷ −)
Picture:			
Colour Intensity	◕	⊞ ⊟	More ⟷ Less
Picture Contrast	◑		More ⟷ Less
Brightness	☼		Bright ⟷ Dark
Hue (for NTSC only)	⛀		Reddish ⟷ Greenish
			Sharp ⟷ Soft
Sound:			
Bass	𝄢	⊞ ⊟	More ⟷ Less
Treble	𝄞		More ⟷ Less
Balance	⋈		More Right/More Left

To reset the picture and sound to factory set levels press →•←.

On the set:
Press →•← +/− buttons simultaneously.





How to select a NICAM broadcast

This Sony TV has been designed to select Nicam broadcasts when available. Whenever a Nicam broadcast is received, the ⋈ symbol appears briefly on the screen. When the Nicam programme ends, or you switch channels to one without Nicam, the ⋈ symbol appears. To check if the channel you are watching is receiving Nicam, press the on screen display button ⊕, on the full function side of the remote commander.

How to select the sound of your choice

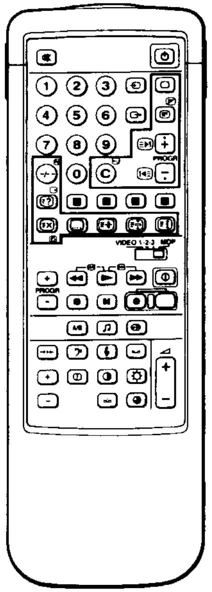
Nicam programmes can be broadcast in three ways. You may select the sound you want to hear in each of these, by pressing the ⊡ button on the full function side of the remote commander.

Nicam service being broadcast	Action	The sound you hear	Indication on the TV ACDB	
Stereo		Stereo	☼	☼
	Press A/B	Normal	▭	▭
	Press A/B again to return to stereo			
Mono		Mono	☼	▭
	Press A/B	Normal	▭	▭
	Press A/B again to return to Nicam mono.			

Bilingual		Language A	☼	▭
	Press A/B	Language B	▭	☼
	Press A/B	Normally broadcast language	▭	▭
	Press A/B again to return to language A			

* Depending on availability of service.

1-5. TELETEXT OPERATION



TV stations broadcast teletext programmes via the TV channels. To receive teletext programmes, use the buttons indicated in green on the full side of the Remote Commander.
With the simple side of the Remote Commander, only the basic operation is possible.

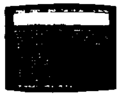
How to View the Teletext

Action	Result
1 Select the channel which carries the teletext service you wish to see.	The channel changes on the screen.
2 Press ⊜.	Teletext will appear. If the teletext signal is not broadcast, then p100 is displayed.
3 Input three digits for the page number using the number buttons. **Note** If you make a mistake, type in any three digits, then re-enter the correct page number.	The numbers are entered on the screen. The requested page will appear in a few seconds.
To return to the TV mode. Press ○. **To change the teletext channels** First press ○ to return to the TV mode, then repeat steps 1 to 3.	

Note
If the signal of the TV channel is weak, teletext errors may often occur.

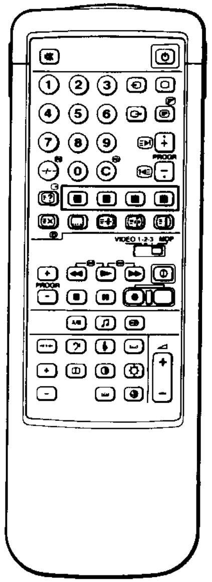
How to Use the Advanced Features of Teletext

How to	Action	Result (On-screen display)
Request the index page.	Press ▣ (INDEX).	The index page appears.
Request the subtitle page (p888).	Press ○.	The subtitle page is displayed (p888).
Access the next or preceding page.	Press ▣ (PAGE +) or ▣ (PAGE –).	The next or preceding page appears.

How to	Action	Result
Superimpose the teletext display on the TV programme.	Press ⊜ once if you are in text mode, or press ⊜ twice if in TV mode. To return to the normal teletext display press ⊜ again.	The teletext displays are superimposed on the TV programmes.
Prevent a teletext page from being updated or changed.	Press ▣ (HOLD). To resume normal teletext reception, press ⊜ (TEXT/MIX).	The HOLD symbol (▣) appears on the screen and the chosen sub-page is held until you cancel.
Enlarge the teletext display.	Press ▣ once to enlarge the upper half. Press twice to enlarge the lower half. Press again to restore the normal display.	The upper half is enlarged.
Reveal concealed information (e.g. answers to a quiz).	Press ▣ (REVEAL). Press again to conceal the information.	 The information is revealed.
Watch the TV programme while waiting for a requested page to be displayed.	**1.** Request a new page.	The numbers are entered.
	2. Press ▣ (TEXT CL).	The TV program is displayed, and the requested page number and other teletext data appear at the top of the screen.
	3. When the requested page has been captured, the page number remains and the other data disappears.	
	4. Press ⊜ to view this page.	The requested page is displayed.
Have a requested page displayed at a pre-determined time.	**1.** Request a desired page.	The requested page is displayed.
	2. Press ▣ (TP ON).	"T****" appears at the bottom of the screen.
	3. Enter the time you want to have the page displayed with four digits using the number buttons. (For example, enter 0730 for 7:30 AM.)	The time is entered on the screen.
	4. Press ▣ (TEXT CL) to watch the TV programme until the requested time.	At the requested time, the page number will be displayed at the top of the screen, to view this page, press ⊜.
	To cancel the request Display the teletext page, then press ▣ (TP OFF).	The request is cancelled. To resume TV mode press ○.

Some of the features may not be available depending on the Teletext service.

1-6. OPTIONAL CONNECTIONS/OPERATIONS



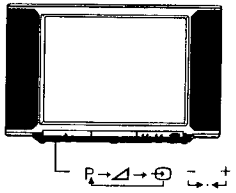
How to use the FASTEXT Feature

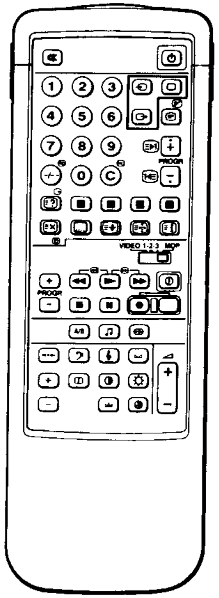
FASTEXT feature allows you to access pages quickly with one key operation.
When a FASTEXT page is broadcast, a colour coded menu appears at the bottom of the screen. Each coloured prompt corresponds to the coloured buttons on either side of your Remote Commander.

Operation

Action	Result
Press one of the coloured buttons which corresponds to the coloured prompt on the teletext.	The selected teletext page appears.

Note
Correct FASTEXT operation depends on the necessary signals sent from the TV station.

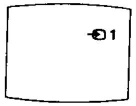




How to view the video input picture

You can view the picture of video equipment connected to the input terminals by selecting the input mode.

Operation

Action	Result	
Press ⊕ repeatedly to select the desired input.		Symbol for the selected input appears. (See the table below.)
To return to the TV mode, press the ○ button.		

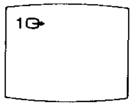
Input modes

Symbol	Result
⊕1	Audio/video input through the ⊕̈ connector.
⊕̈	RGB input through the ⊕̈ connector.
⊕2	Audio/video input through the ⊖ 2/⊕S connector.
⊕S 2	S video input (from a VTR equipped with an S video output) through the ⊖ 2/⊕S connector.
⊕3	Audio/video input through ⊕ and ⊕ jacks on the front.
You can also select the input mode using the P→⊿→⊕ button on the TV. In this case, first select ⊕ and then press +/– buttons to select the input.	

How to select the Output

The ⊖ 2/⊕S connector outputs four kinds of audio/video signals. You have to select one of them as follows.

Operation

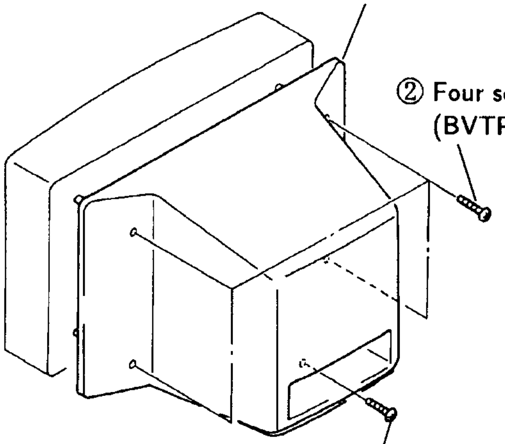
Action	Result	
Press ⊖ repeatedly to select the desired input.		Symbol for the selected output appears. (See the table below.)

Output modes

Symbol	Output from
1 ⊖	The audio/video signal from the ⊕̈ 1 connector
2 ⊖	The audio/video signal from the ⊖ 2/⊕S connector
3 ⊖	The audio/video signal from the ⊕ ⊕ connectors.
TV ⊖	The audio/video signal from the T aerial terminal.

SECTION 2
DISASSEMBLY

2-1-1. REAR COVER REMOVAL (21 inch)

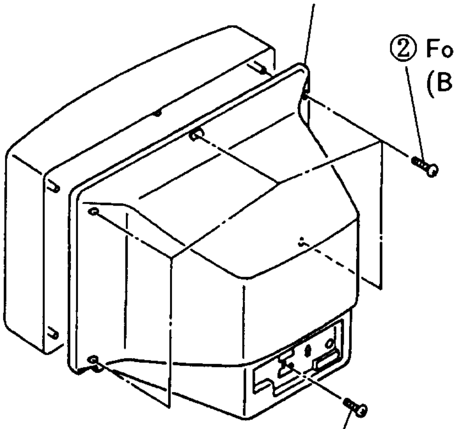


③ Rear cover

② Four screws
(BVTP4×16)

① One screw
(BVTP4×16)

2-1-2. REAR COVER REMOVAL (25inch, 29inch)

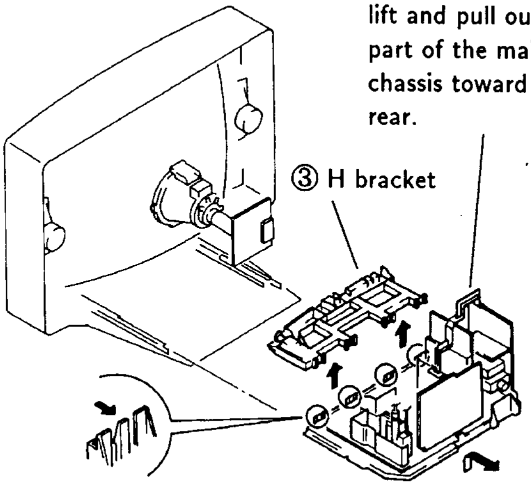


③ Rear cover

② Four screws
(BVTP4×16)

① One screw
(BVTP4×16)

2-2-1. CHASSIS ASSEMBLY REMOVAL (21inch)

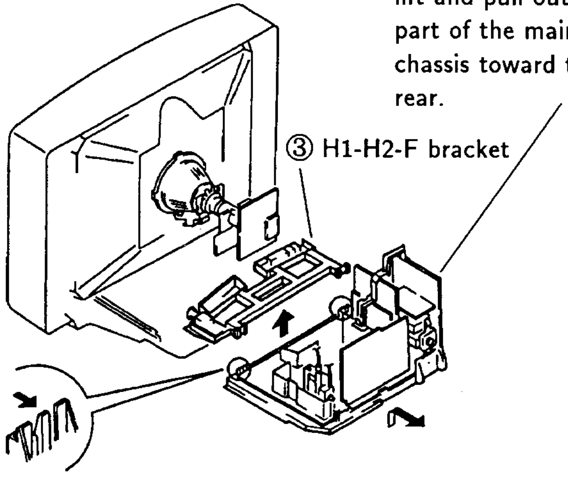


① After the assembly of the main chassis, lift and pull out rear part of the main chassis toward the rear.

③ H bracket

② Push the four claws of the main chassis in the direction of arrow and remove the H bracket upwards.

2-2-2. CHASSIS ASSEMBLY REMOVAL (25inch, 29inch)

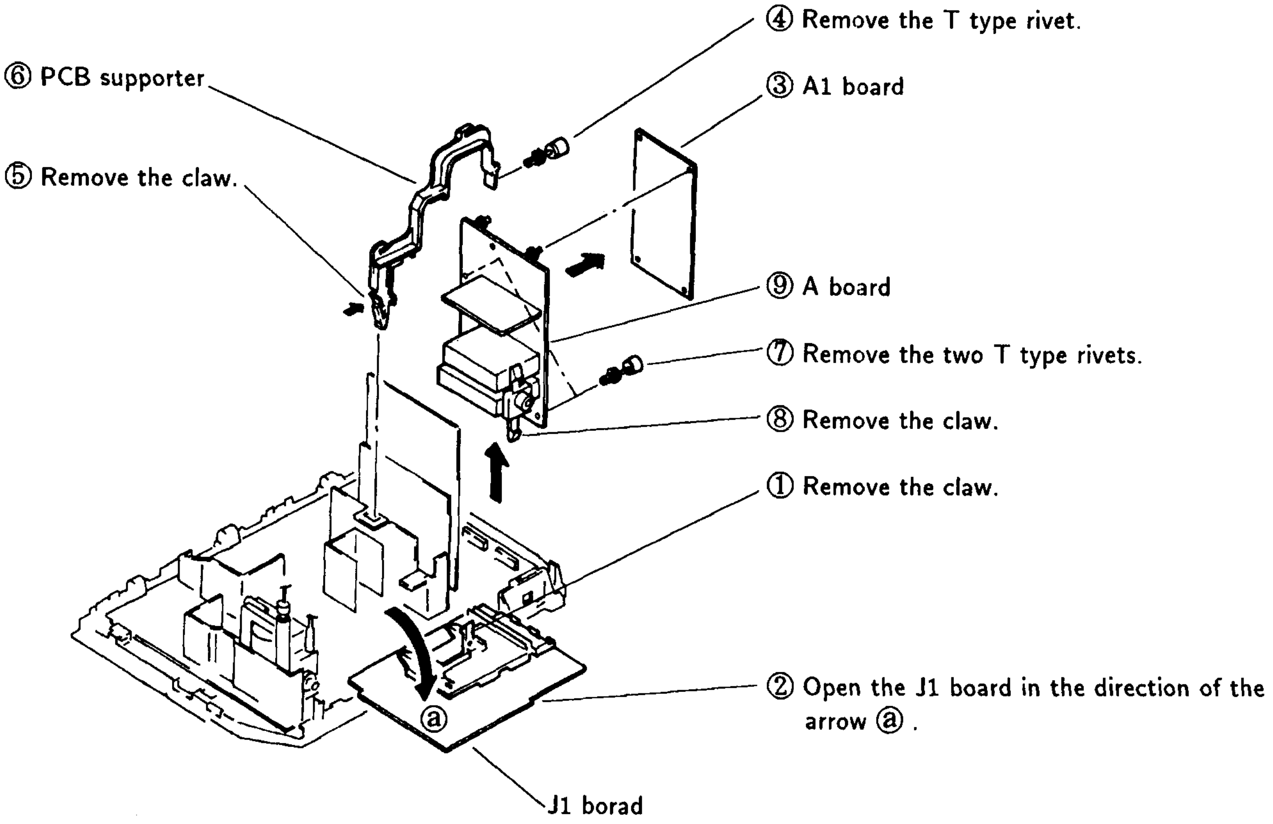


① After the assembly of the main chassis, lift and pull out rear part of the main chassis toward the rear.

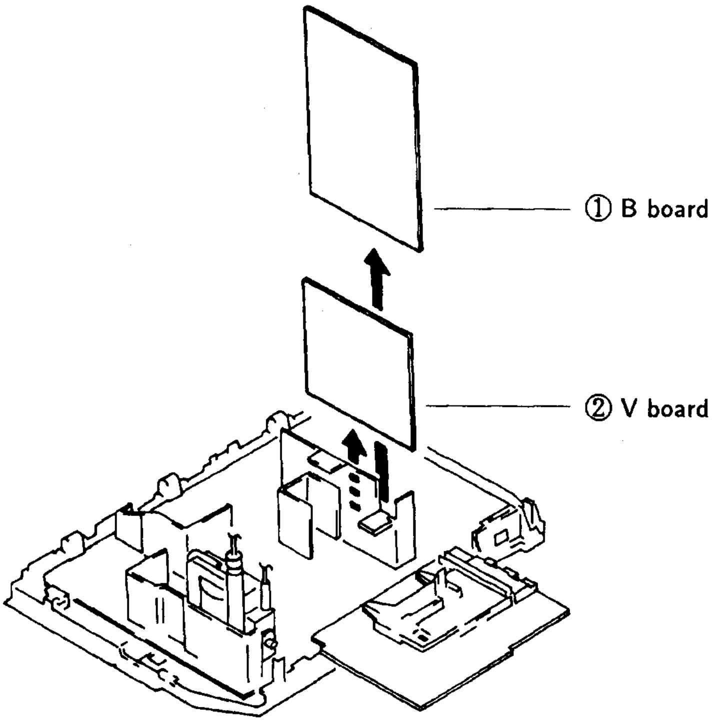
③ H1-H2-F bracket

② Push the two claws of the main chassis in the direction of arrow and remove the H1-H2-F bracket upwards.

2-3. A, A1 AND J1 BOARDS REMOVAL


④ Remove the T type rivet.
⑥ PCB supporter
③ A1 board
⑤ Remove the claw.
⑨ A board
⑦ Remove the two T type rivets.
⑧ Remove the claw.
① Remove the claw.
② Open the J1 board in the direction of the arrow ⓐ .
ⓐ
J1 borad

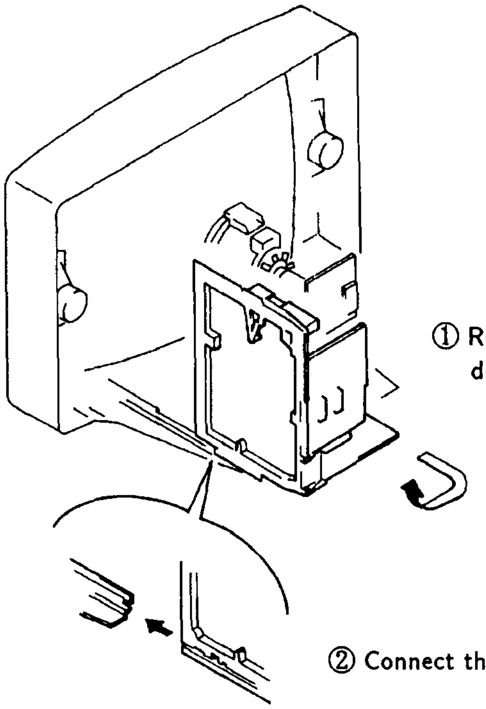
2-4. B AND V BOARDS REMOVAL


① B board
② V board

Note : 10 pin extension cable (S-0945-001-0)

2-5-1. SERVICE POSITION (21inch)

* Remove the bracket from the main chassis assembly and then perform the following servicing.
(Refer to 2-2-1. CHASSIS ASSEMBLY REMOVAL.)

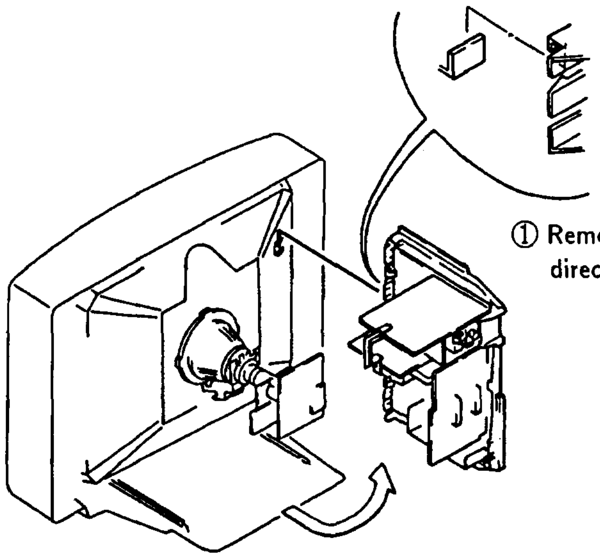


① Remove main chassis assembly in the direction of the arrow.

② Connect the main chassis assembly to the holder.

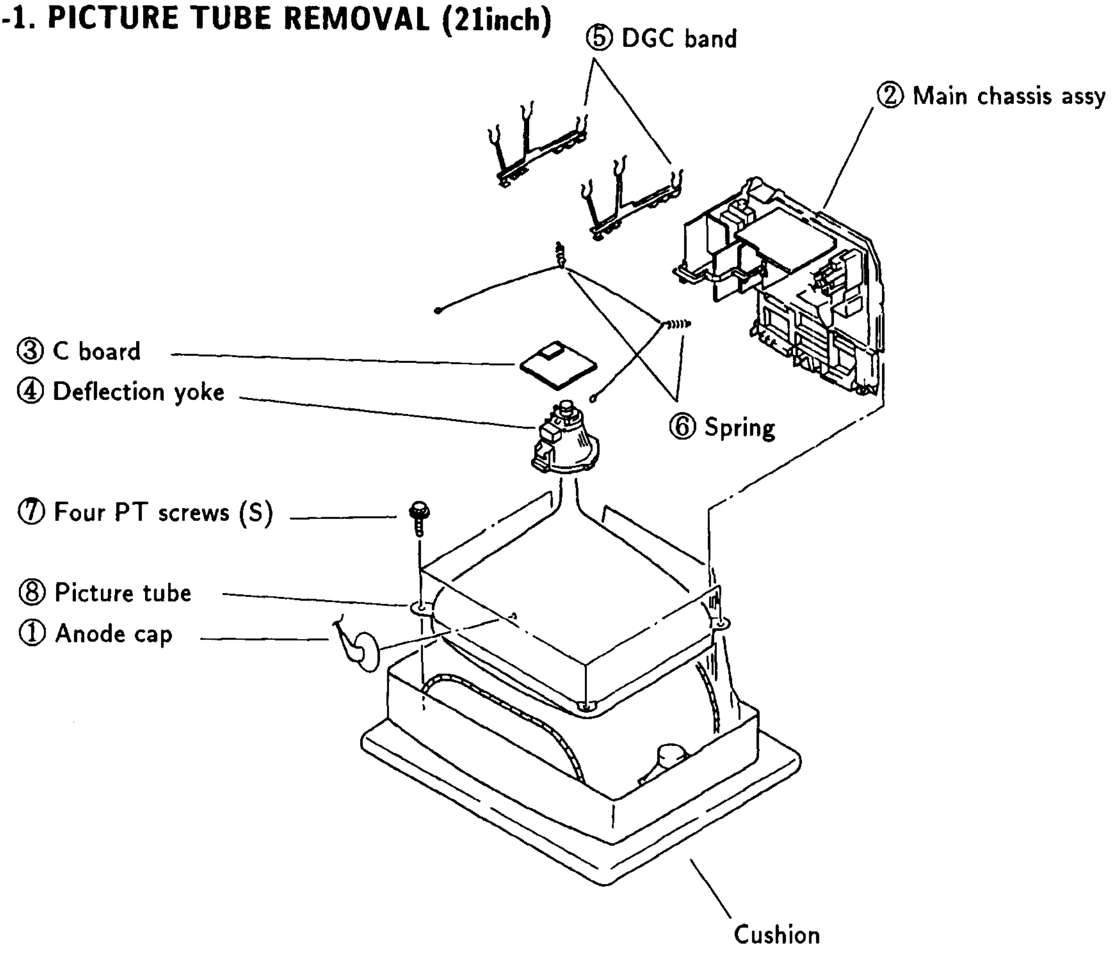
2-5-2. SERVICE POSITION (25inch, 29inch)

* Remove the connector bracket from the main chassis assembly and then perform the following servicing.
(Refer to 2-2-2. CHASSIS ASSEMBLY REMOVAL.)



① Remove main chassis assembly in the direction of the arrow.

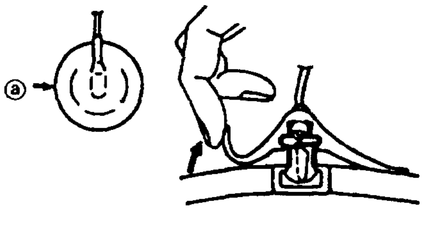
2-6-1. PICTURE TUBE REMOVAL (21inch)


⑤ DGC band
② Main chassis assy
③ C board
④ Deflection yoke
⑥ Spring
⑦ Four PT screws (S)
⑧ Picture tube
① Anode cap
Cushion

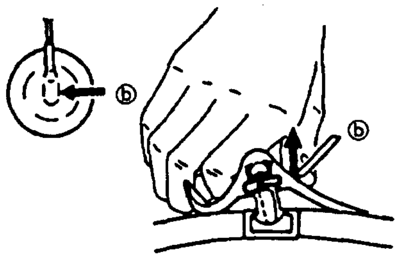
• REMOVAL OF ANODE-CAP

NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT chield or carbon painted on the CRT, after removing the anode.

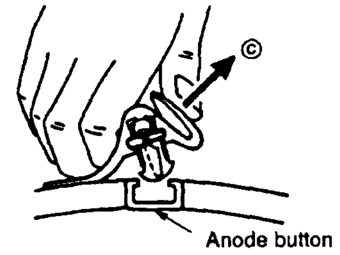
• REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.


ⓒ
Anode button

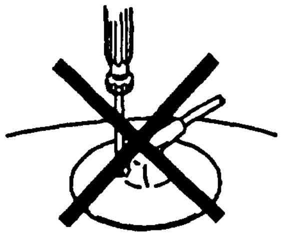
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.

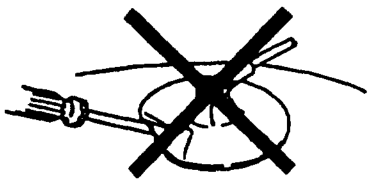
• HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with sharp shaped material!

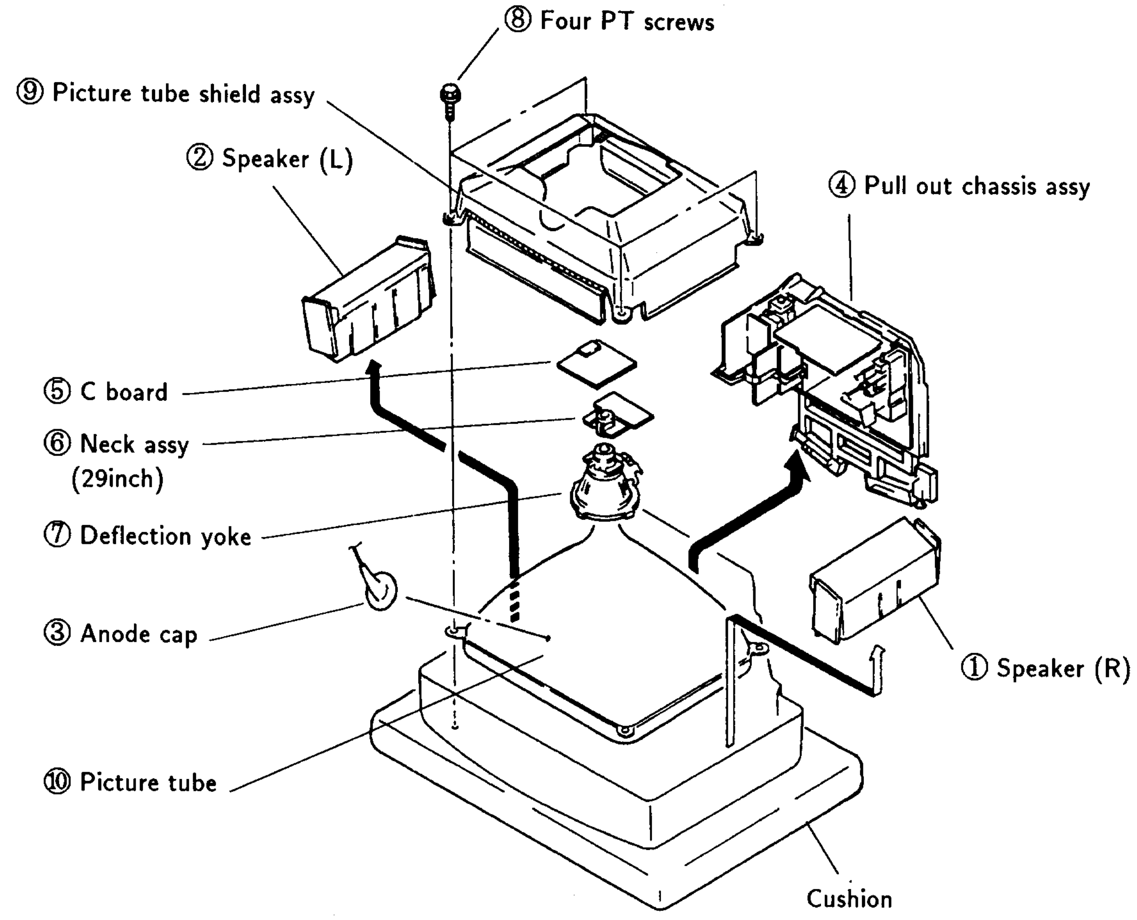
② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.



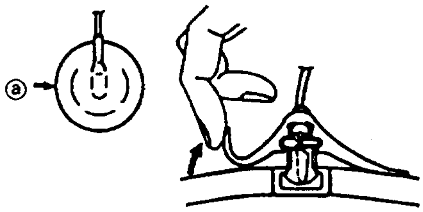


2-6-2. PICTURE TUBE REMOVAL (25inch, 29inch)

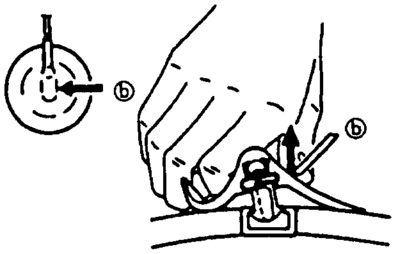

⑧ Four PT screws
⑨ Picture tube shield assy
② Speaker (L)
④ Pull out chassis assy
⑤ C board
⑥ Neck assy
(29inch)
⑦ Deflection yoke
③ Anode cap
① Speaker (R)
⑩ Picture tube
Cushion

• REMOVAL OF ANODE-CAP

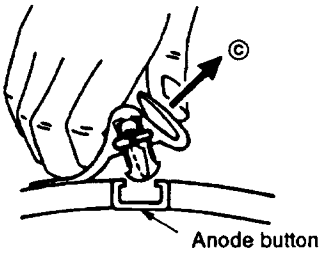
• REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.


ⓒ
Anode button

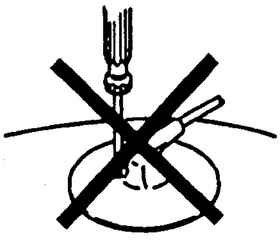
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.

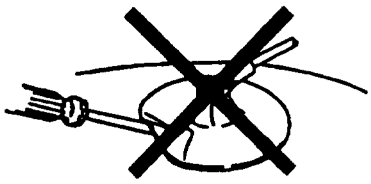
• HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with sharp shaped material!

② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.





SECTION 3
SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

The controls and switch below should be set as follows unless otherwise noted :

◑ CONTRASTcontrol……… 80%(or Normal by commander)

☼ BRIGHTNESS control…… 50%

Perform the adjustments in order as follows:

1. Beam Landing
2. Convergence
3. Focus
4. Screen (G 2) and White Balance

Note: Test Equipment Required.

1. Color bar/Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital multimeter
5. Oscilloscope

Preparation: (21 inch, 25 inch)

- Set the side of the unit with the PICTUE TUBE so that it faces east or west in order to reduce the influence of external magnetic force.
- Turn the power switch for the unit ON and erase the magnetic force using a degausser..

3-1. BEAM LANDING

Demagnetize with a degausser

1. Input a raster signal with the pattern generator.
   CONTRAST } normal
   BRIGHTNESS }
2. Turn the raster signal of the pattern generator to red.
3. Move the deflection yoke backward, and adjust with the purity control so that red is in the center and blue and green are at the sides evenly. (Fig.3-1 - 3-3)
4. Move the deflection yoke forward, and adjust so that the entire screen becomes red. (Fig.3-1)
5. Switch over the raster signal to blue and blue and confirm the condition.
6. When the position of the deflection yoke is determined,tighten it with a deflection yoke mounting screw.
7. When landing at the corner is not right, adjust by using the disk magnets. (Fig.3-4)

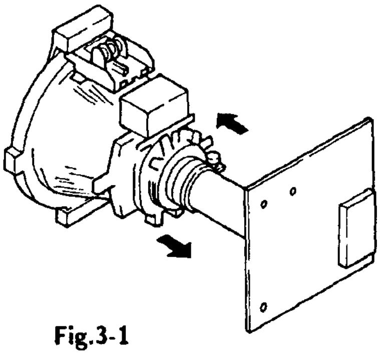


Fig.3-1

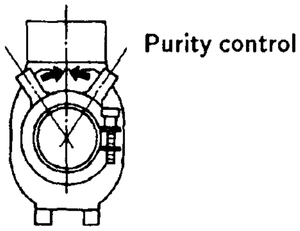

Purity control

Fig.3-2

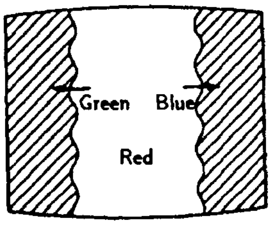

Green
Blue
Red

Fig.3-3

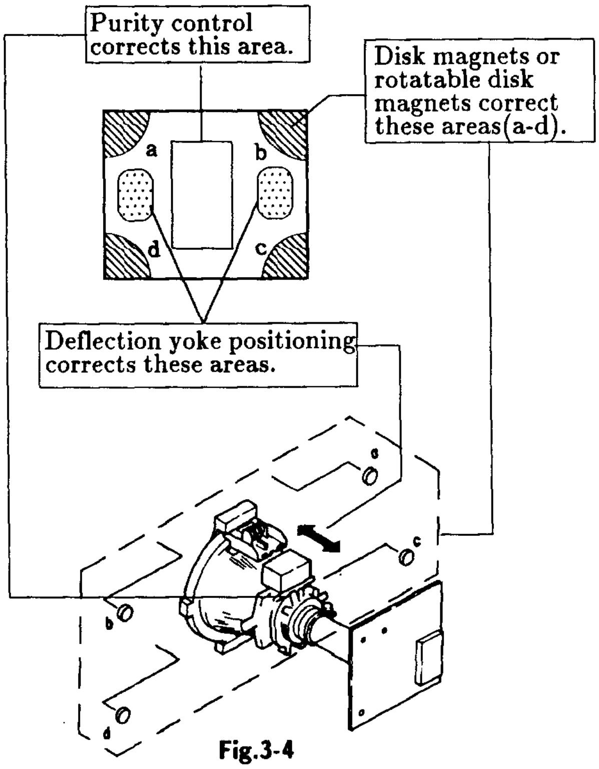

Purity control corrects this area.
Disk magnets or rotatable disk magnets correct these areas(a-d).
a
b
c
d
Deflection yoke positioning corrects these areas.
a
b
c
d

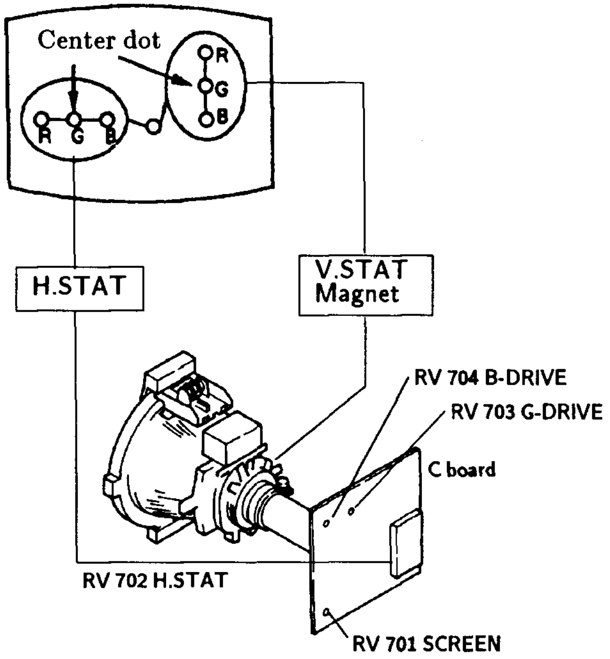
Fig.3-4

3-2. CONVERGENCE

Preparation:

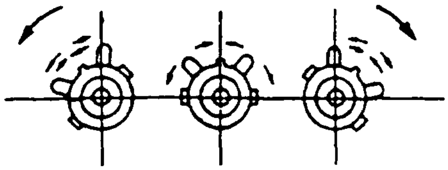
- Before starting, perform FOCUS, H.SIZE, and V. SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Feed in the dot pattern.

(1) Horizontal and Vertical Static Convergence

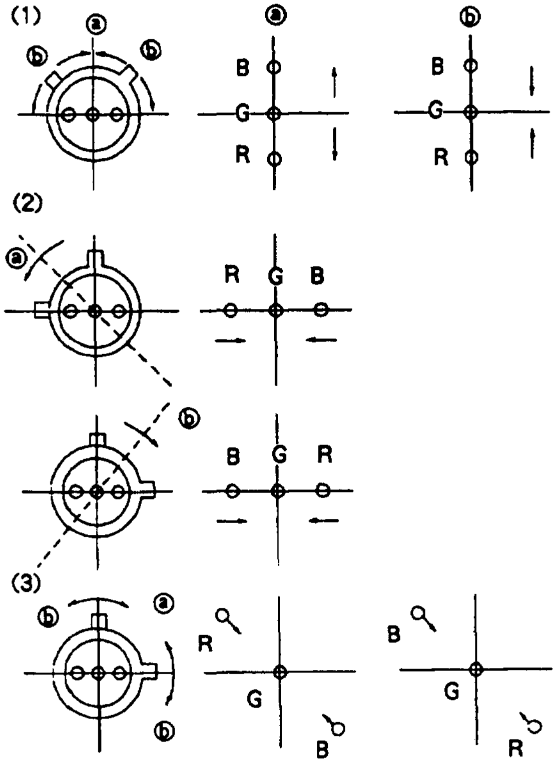

Center dot
R
G
B
R
G
B
H.STAT
V.STAT Magnet
RV 704 B-DRIVE
RV 703 G-DRIVE
C board
RV 702 H.STAT
RV 701 SCREEN

1. Adjust H.STAT VR to converge red, green and blue dots the in center of the screen.(Horizontal movement)
2. Adjust V. STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)
3. If the red, green and blue dots do not converge on the center of screen with H.STAT VR, perform horizontal convergence adjustment using H.STAT VR and V.STAT magnet as shown below. (In this case, H.STAT VR and V.STAT magnet effect each other.)

- Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



4. When the V.STAT magnet is moved in the direction of arrow ⓐ and ⓑ, red, green and blue dots move as shown below.


(1)
ⓐ
ⓑ
ⓑ
ⓐ
B
G
R
ⓑ
B
G
R
(2)
ⓐ
R
G
B
ⓑ
B
G
R
(3)
ⓑ
ⓐ
ⓑ
R
G
B
B
G
R

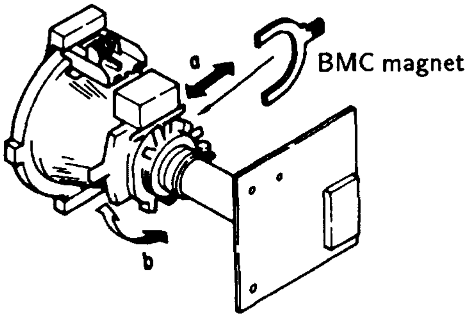
(KV-21 inch only)

If the red and blue dot do not converge with green dots, perform following steps.

Move BMC magnet (a) to correct insufficient H.static convergence.

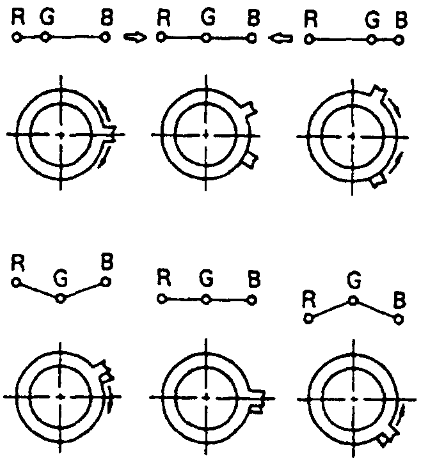
Rotate BMC magnet (b) to correct insufficient V.static convergence.

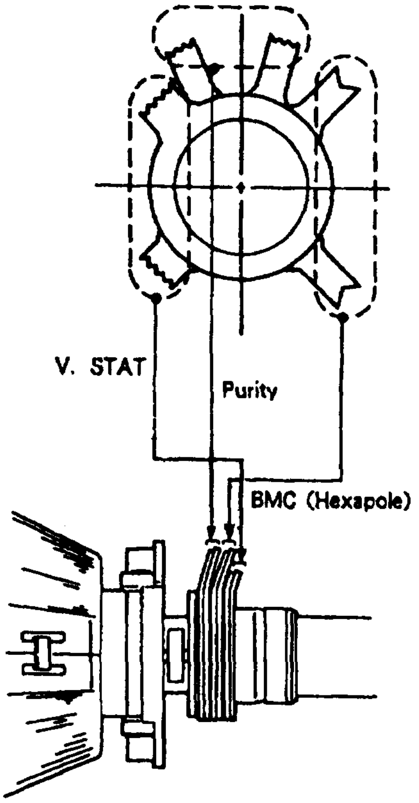
In either case, repeat Beam Landing Adjustment.


a
BMC magnet
b

(KV-25 inch only)

- Operation of BMC (Hexapole) Magnet


R G B R G B R G B
R G B
R G B
G R B


V. STAT
Purity
BMC (Hexapole)

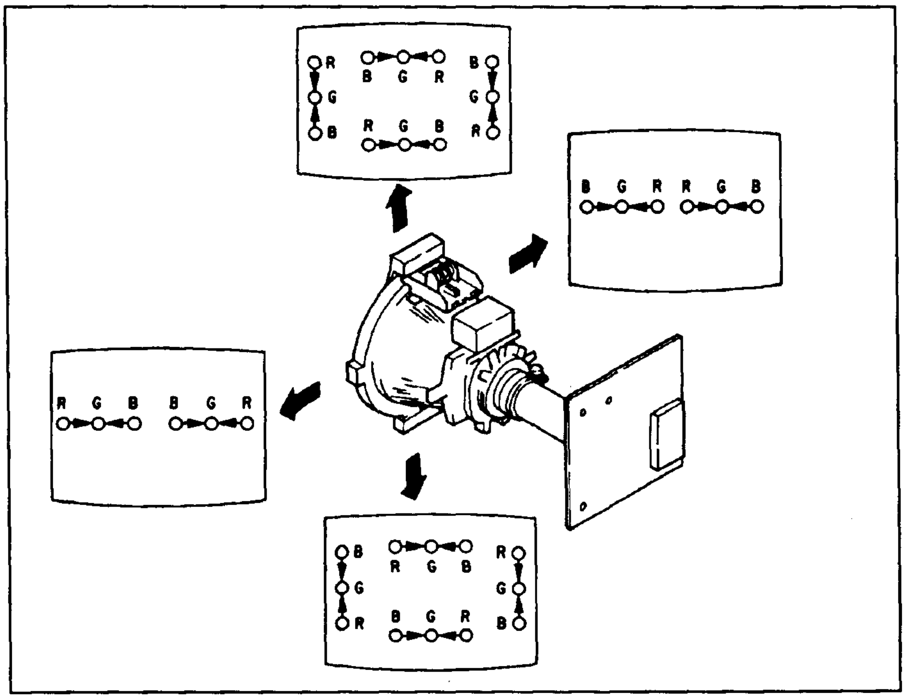
- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.
  Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

(2)Dynamic Convergence Adjustment

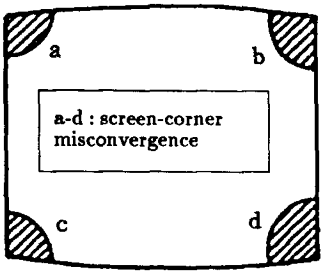
Preparation:

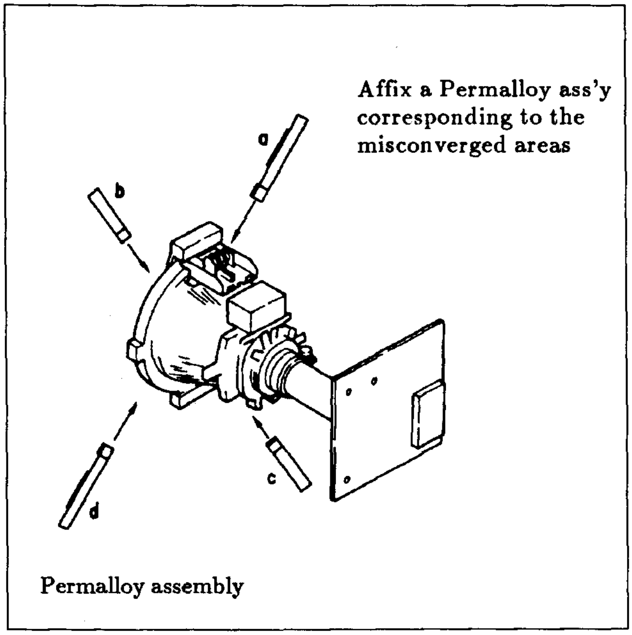
● Before starting perform Horizontal and Vertical static convergence Adjustment.

1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergenceas shown below.
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.


R G B B G R
R G B R G B
B G R R G B
R G B B G R
B G R R G B
R G B B G R
B G R R G B

(3) Screen-corner Convergence

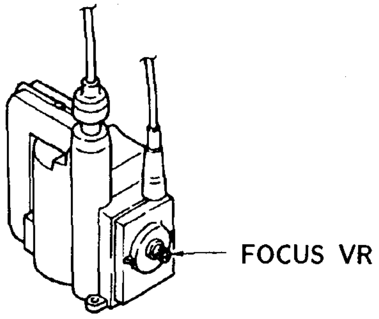

a
b
a-d : screen-corner misconvergence
c
d


Affix a Permalloy ass'y corresponding to the misconverged areas

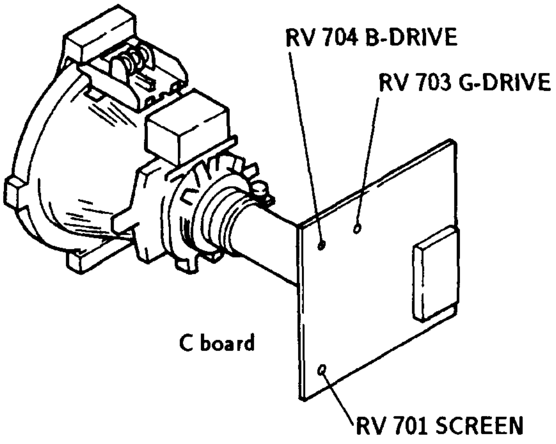
Permalloy assembly

3-3. FOCUS

Adjust FOCUS so that the whole screen is in best focus.



3-4. SCREEN (G 2) and WHITE BALANCE


RV 704 B-DRIVE
RV 703 G-DRIVE
C board
RV 701 SCREEN

Screen (G 2) Setting

1. Input dot signal from the pattern generator.
2. Set the picture BRIGHTNESS control to minimum level.
3. Apply 170 V DC to the cathodes of R,G and B from an external power power source.
4. While watching the picture, adjust the G 2 volume (RV701) immediately before fly-back line disappears.

White Balance Adjustment

1. Input all-white signal from the pattern generator.
2. Adjust the BRIGHTNESS and COLOR controls to the standard level.
3. Adjust the following using RV 704 (B DRIVE) and RV 703 (G DRIVE)

In the following adjustments, the CONTRAST, COLOR and BRIGHTNESS controls are set to normal unless otherwise specified.

Preparations : (29 inch)

- In order to reduce the influence of geomagnetism on the set's picture tube face it east or west.
- Switch on the set's power and degauss with the degausser.

3-5. BEAM LANDING

1. Input the white signal with the pattern generator.
   Contrast } normal
   Bightness }
2. Position neck ass'y as shown in Fig 3-6.
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke to the rear and adjust with the purity control so that the red is at the center and the blue and the green take up equally sized areas on each side.
   (See Figures 3-5 through 3-7.)
5. Move the deflection yoke forward and adjust so that entire screen is red. (See Figure 3-5.)
6. Switch the raster signal to blue, then to green and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it.
   (See Figure 3-8.)

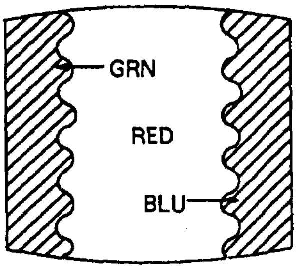


Fig. 3-7

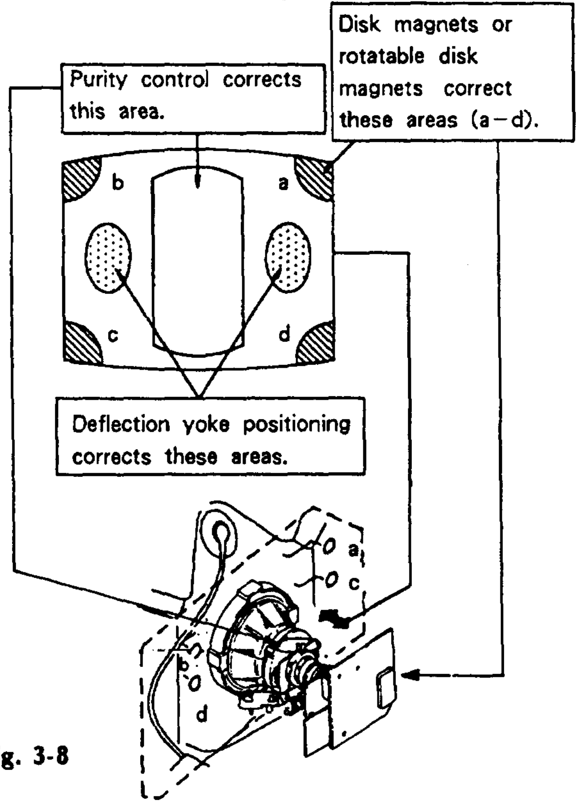

Disk magnets or rotatable disk magnets correct these areas (a–d).
Purity control corrects this area.
b
a
c
d
Deflection yoke positioning corrects these areas.
a
c
b
d

Fig. 3-8

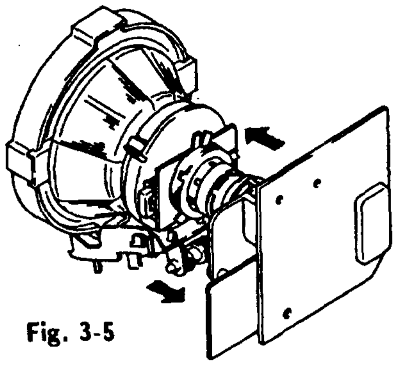


Fig. 3-5

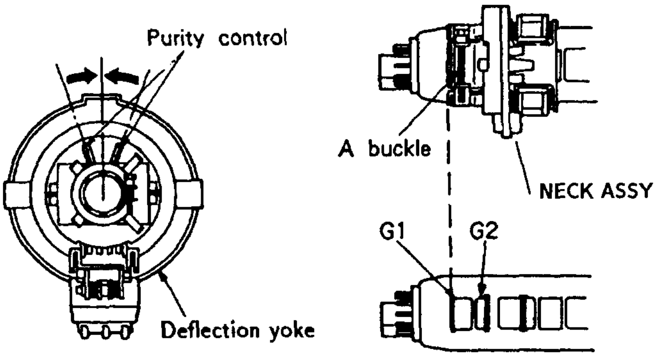

Purity control
Deflection yoke
A buckle
NECK ASSY
G1
G2

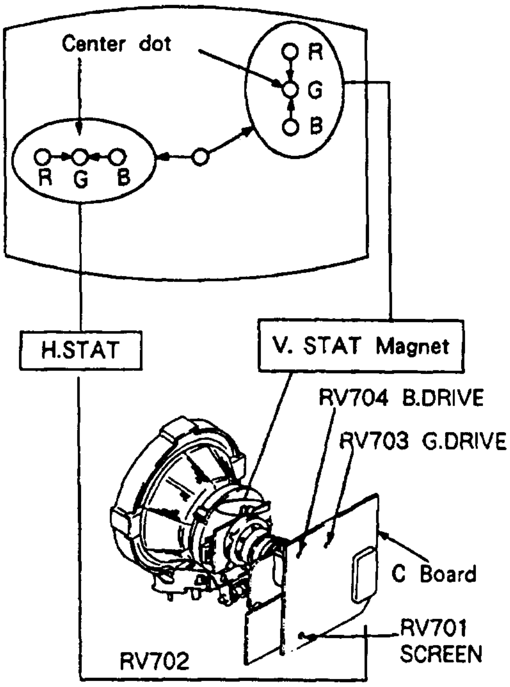
Fig. 3-6

3-6. CONVERGENCE

Preparations :

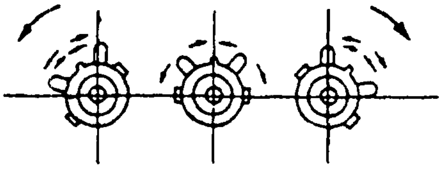
- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

(1) Horizontal and vertical static convergence

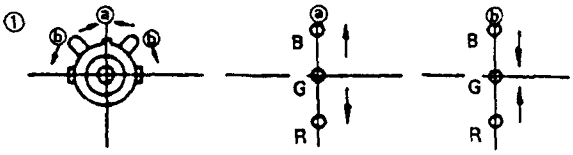

Center dot
R
G
B
R G B
H.STAT
V. STAT Magnet
RV704 B.DRIVE
RV703 G.DRIVE
C Board
RV701
SCREEN
RV702

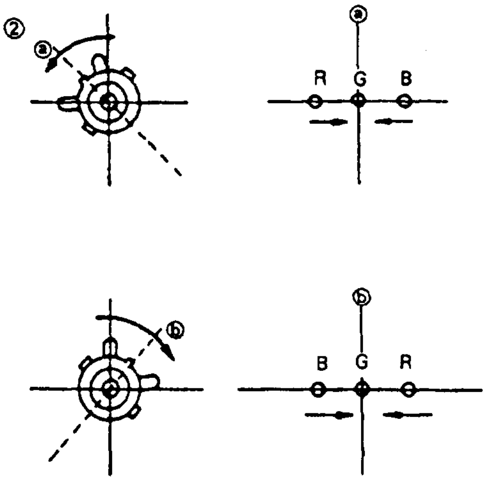
1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other)

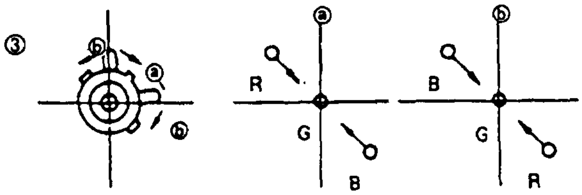
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



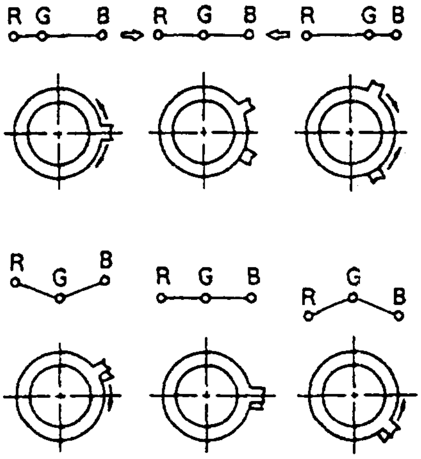
4. If the V.STAT magnet is moved in the direction of the ⓐ and ⓑ arrows, the red, green, and blue points move as shown below.

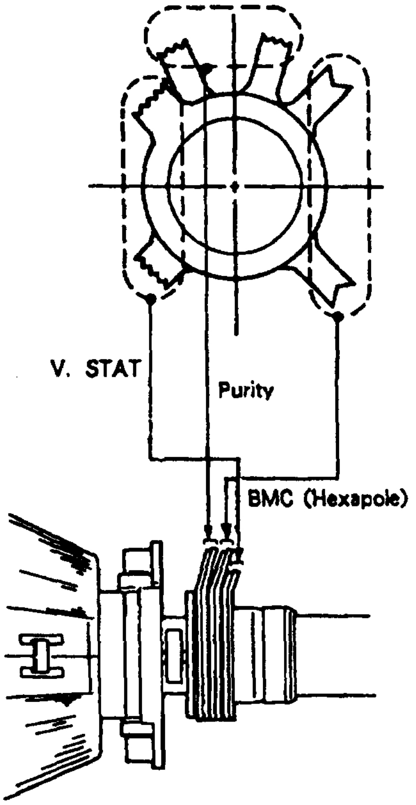






- Operation of BMC (Hexapole) Magnet


R G B
R G B
R G B
R G B
R G B
R G B


V. STAT
Purity
BMC (Hexapole)

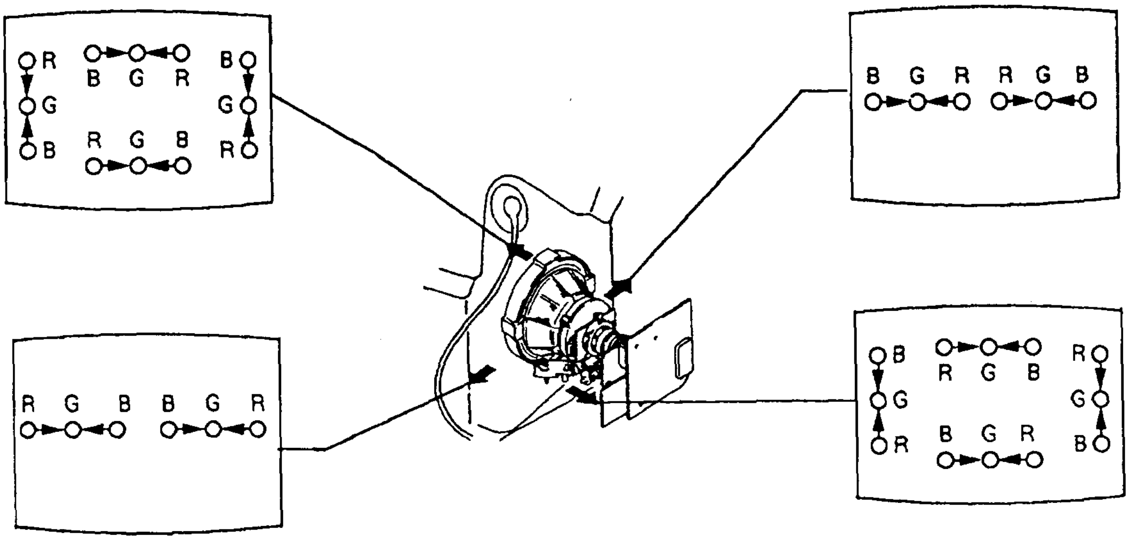
- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.
  Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

(2) Dynamic convergence adjustment

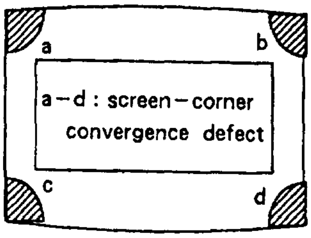
Preparations :

Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

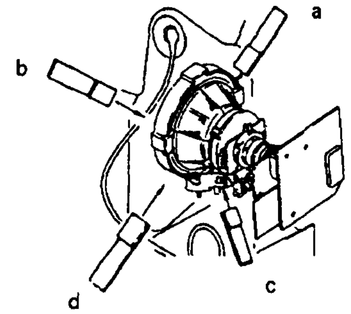
1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the defelection yoke spacer.


R G B
B G R
R G B
B G R R G B
R G B B G R
B R G
R G B
G
B G R
R B

(3) Screen corner convergence



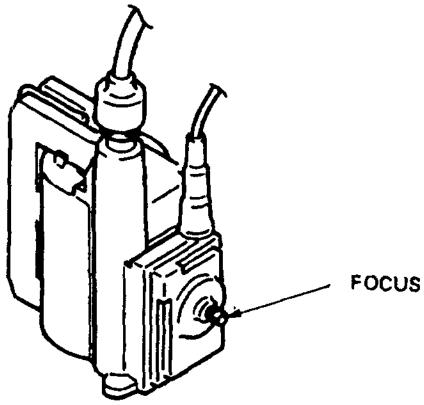
Install the permalloy assembly for the section with faulty.



Permalloy

3-7. FOCUS

Adjust the focus to optimize the screen.



3-8. WHITE BALANCE

[Screen G2 setting]

1. Input the dot signal from the pattern generator.
2. Set the picture brightness control to its lowest level.
3. Apply 170V DC to the R, G, and B cathodes with an external power supply.
4. While watching the picture, adjust G2 control RV701 (Screen) to the point just before the return lines disappear.

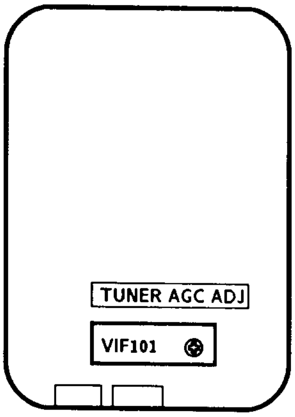
[White balance adjustment]

1. Input an all-white signal from the pattern generator.
2. Set the picture brightness and color controls to their normal levels.
3. Use the RV704 (B Drive) and RV703 (G Drive) to adjust white balance.

In the adjustments below, have the picture color and brightness settings at their normal levels unless there is a specific instruction to the contrary.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. A BOARD ADJUSTMENTS

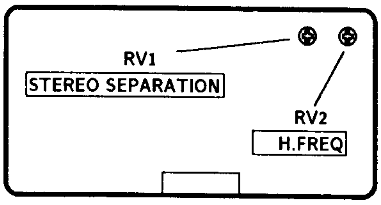


A BOARD (COMPONENT SIDE)

TUNER AGC ADJUSTMENT (AGC VR)

1. Align with an appropriate signal between stations.
2. Adjust AGC VR so that snow noise and cross modulation just disappear from the picture.

IFG5.5S SIF



IFG5.5S SIF -component side-

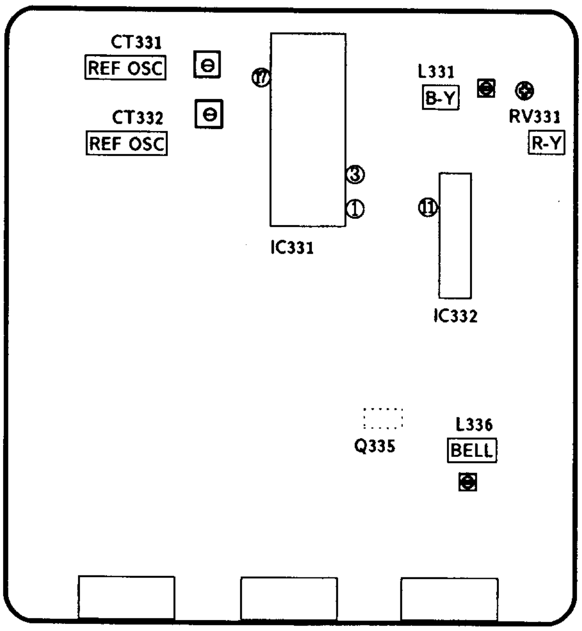
STEREO SEPALATION ADJUSTMENT (RV1)

1. Input stereo signals. (L-CH 400Hz, R-CH 1KHz)
2. Check the stereo indicator.
3. Connect on oscilloscope to pin⑧ (CH1) of CN1 through band pass filter of 1KHz
4. Adjust RV1 so that 1KHz voltage goes down to the minmum.

H FREQ (RV2)

1. Input a PAL COLOR BAR signal, then connect a jumper between pin⑫ IC4 and GND.
2. Connect a frequency counter to pin④ IFG5.5S (HP) of CN1 through a probe of 10 : 1.
3. Adjust RV2 (H.FREQ) 15.625±50Hz.
4. After adjustment, remove the jamper.

4-2. B BOARD ADJUSTMENTS



B BOARD (COMPONENT SIDE)

REFERENCE OSCILLATOR ADJUSTMENT (CT332 8.8MHz)

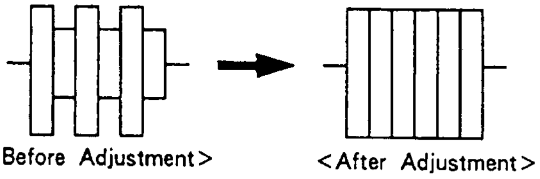
1. Input a PAL color bar signal.
2. Ground pin ⑰ of the IC331.
3. Adjust CT332 to obtain synchronization.

REFERENCE OSCILLATOR ADJUSTMENT (CT331 7.16MHz)

1. Input an NTSC358 color bar signal.
2. Ground pin ⑰ of IC331.
3. Adjust the CT331 to obtain synchronization.
4. Remove the jumper grounding pin ⑰ of IC331.

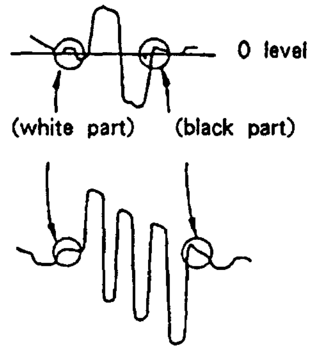
BELL FILTER ADJUSTMENT (L336)

1. Input a SECAM color bar signal.
2. Connect the oscilloscope to the emitter of Q335.
3. Adjust L336 so that the waveform is flat.

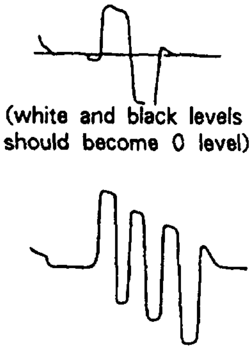


DISCRIMINATION ADJUSTMENTS (RV331 and L331)

1. Input a SECAM color bar signal.
2. Connect the oscilloscope to pin ① of IC331.
3. Adjust RV331 until the white and black sections of the waveform at pin ① are at the 0 level. Connect the oscilloscope to pin ③ of IC331.
4. Adjust L331 until the white and black sections of the waveform at pin ③ are at the 0 level.

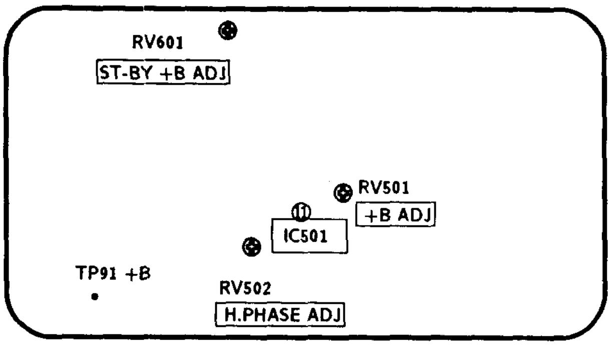

0 level
(white part)
(black part)

(Before Adjustment)


(white and black levels should become 0 level)

(After adjustment)

4-3. D BOARD ADJUSTMENTS


RV601
ST-BY +B ADJ
RV501
+B ADJ
⑪
IC501
TP91 +B
RV502
H.PHASE ADJ

D BOARD (COMPONENT SIDE)

+B ADJUSTMENT (RV501)

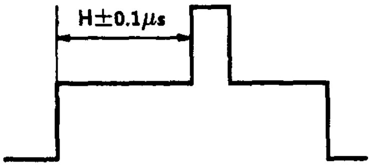
1. Connect the digital multimeter to TP91.
2. Adjust RV501 to obtain 135±0.2V.

ST-BY +B ADJUSTMENT (RV601)

1. Put the system into ⏻ standby mode (remote commander).
2. Connect the digital multimeter to TP91.
3. Adjust RV601 to obtain 135±3V.
4. Take the system out of ⏻ standby mode (remote commander).

H.PHASE ADJUSTMENT (RV502)

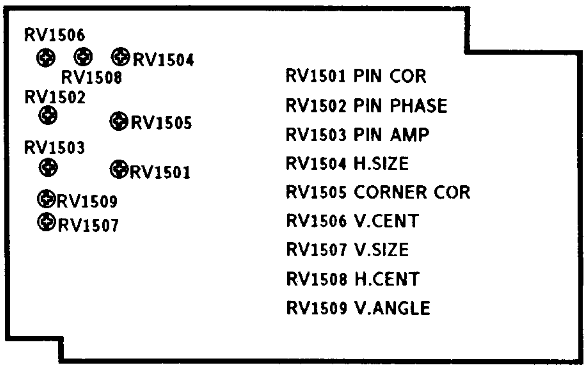
1. Input a PAL color bar signal.
2. Set the picture and brightness controls to their normal levels.
3. Set RV1508 (H.CENT) to its mechanical center.
4. Connect the oscilloscope to pin ⑪ (SCP) of IC 501.
5. Rotate RV502 to adjust to H±0.1μs.



Standard of H. PHASE

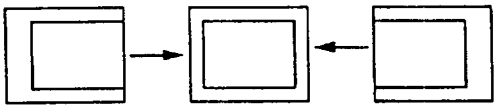
Model Size	H
21″	5.6μs
25″	5.1μs
29″	5.5μs

4-4. J1 BOARD ADJUSTMENTS

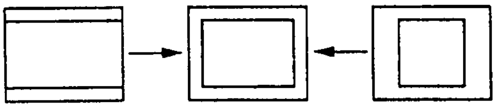

RV1506
RV1504
RV1508
RV1502
RV1505
RV1503
RV1501
RV1509
RV1507
RV1501 PIN COR
RV1502 PIN PHASE
RV1503 PIN AMP
RV1504 H.SIZE
RV1505 CORNER COR
RV1506 V.CENT
RV1507 V.SIZE
RV1508 H.CENT
RV1509 V.ANGLE

J1 BOARD (COMPONENT SIDE)

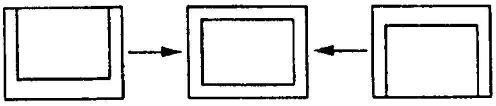
RV1508
H. CENT (HORIZONTAL CENTER)



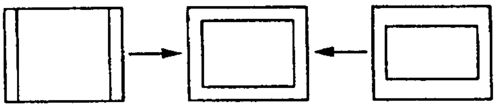
RV1504
H. SIZE (HORIZONTAL SIZE)



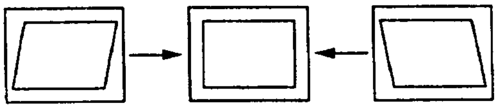
RV1506
V. CENT (VERTICAL CENTER)



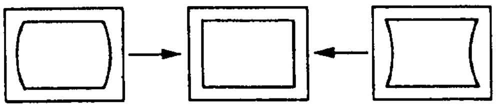
RV1507
V. SIZE (VERTICAL SIZE)



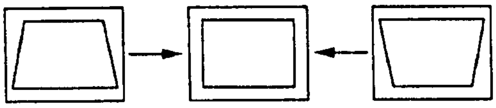
RV1509
V. ANGLE (VERTICAL ANGLE)



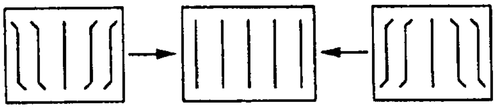
RV1503
PIN AMP (PINCUSHION AMPLIFIER)



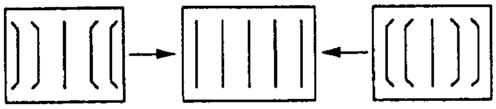
RV1502
PIN PHASE (PINCUSHION PHASE)



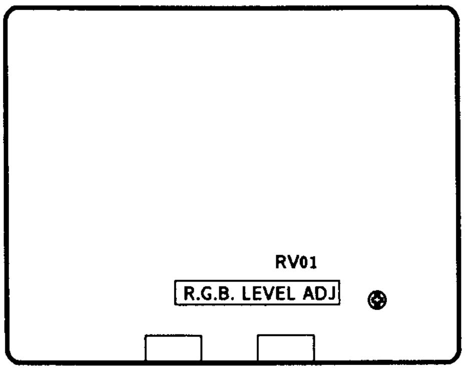
RV1501
PIN. COR (PINCUSHION CORRECT)



RV1505
CORNER COR (CORNER CORRECT)



4-5. V BOARD ADJUSTMENT

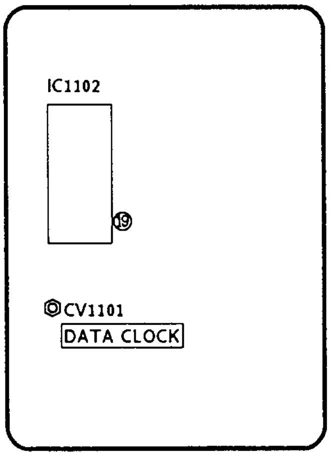

RV01
R.G.B. LEVEL ADJ

V BOARD (COMPONENT SIDE)

RGB LEVEL ADJUSTMENT (RV01)

1. Maximize the picture setting.
2. Adjust RV01 so that the RGB output is 0.75V.

4-6. A1 BOARD ADJUSTMENTS


IC1102
⑲
CV1101
DATA CLOCK

A1 BOARD (COMPONENT SIDE)

DATA CLOCK Adjustment (CV1101)

1. Tune in a no signal.
2. Connect a frequency counter to pin ⑲ of IC1102 (PCLK) through a probe of 10:1.
3. Adjust CV1101 (DATA CLOCK) so that frequency becomes 728.022KHz ± 1Hz.

4-7. SECONDARY ADJUSTMENTS

SUB BRIGHTNESS ADJUSTMENT

1. Set the system to receive a test pattern.
2. Press →•← on the remote commander to put the system into normal mode.
3. Switch off the power.
4. While depressing the adjusting buttons + and — simultaneusly, turn on the power. (SUB mode is obtained)
5. Minimize the ◑ contrast setting.
6. Adjust the ☼ brightness control so that the gray scale 0 IRE section is cut off completely and the 20 IRE section is barely glowing.
7. Depress the ◇ (store) button of the remote commander.
   (SUB mode is released)

If there is no test color pattern

1. Set the system to receive a color pattern.
2. Press →•← on the remote commander to put the system into normal mode.
   Set the ⊛ color to its normal state.

3-5. Steps are the same as above.

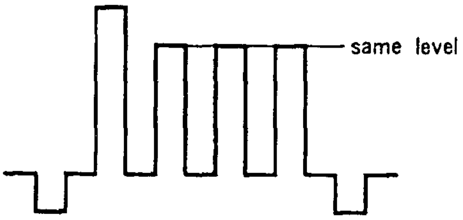
6. Since 20 IRE is nearly blue, adjust the ☼ brightness control so that the blue barely glows.

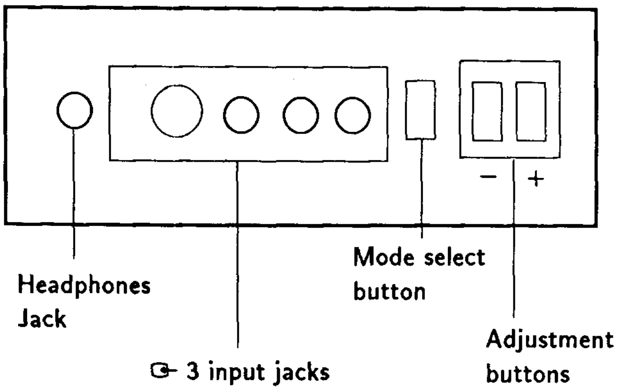
7. Same as step 7 above.

8. Press →•← on the remote commander to put the system into normal mode.

SUB COLOR ADJUSTMENT

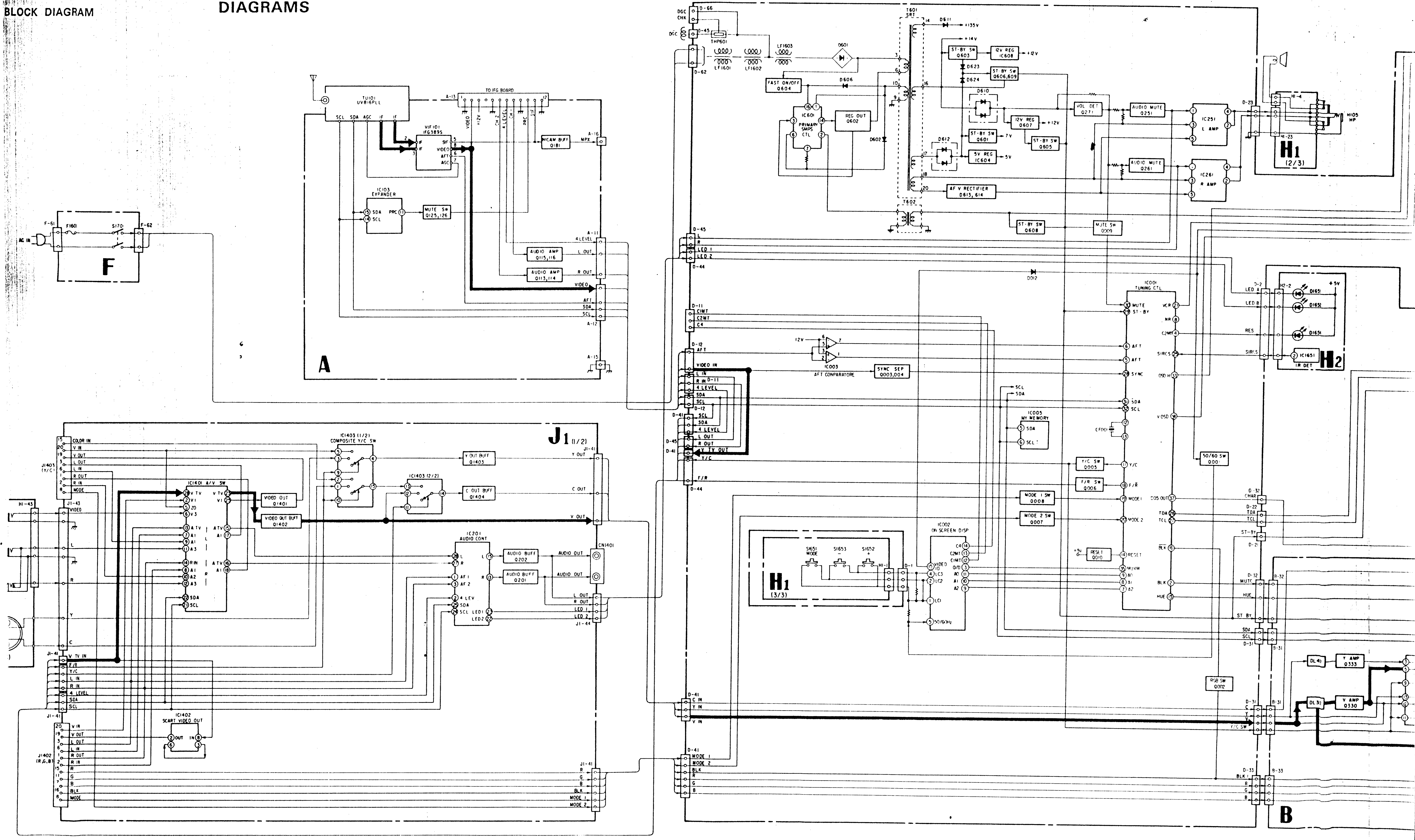
1. Set the system to receive color bars.
2. Press →•← on the remote commander to put the system into normal mode.
3. Cut off the power.
4. While depressing the adjustment buttons + and — simultaneusly, turn on the power. (SUB mode is obtained).
5. Adjust the color control so that the B out waveform (pin ⑤ of C board connector CNC72) is as shown in the figure below.
6. Depress the ◇ (store) button of the remote commander. (SUB mode is released)

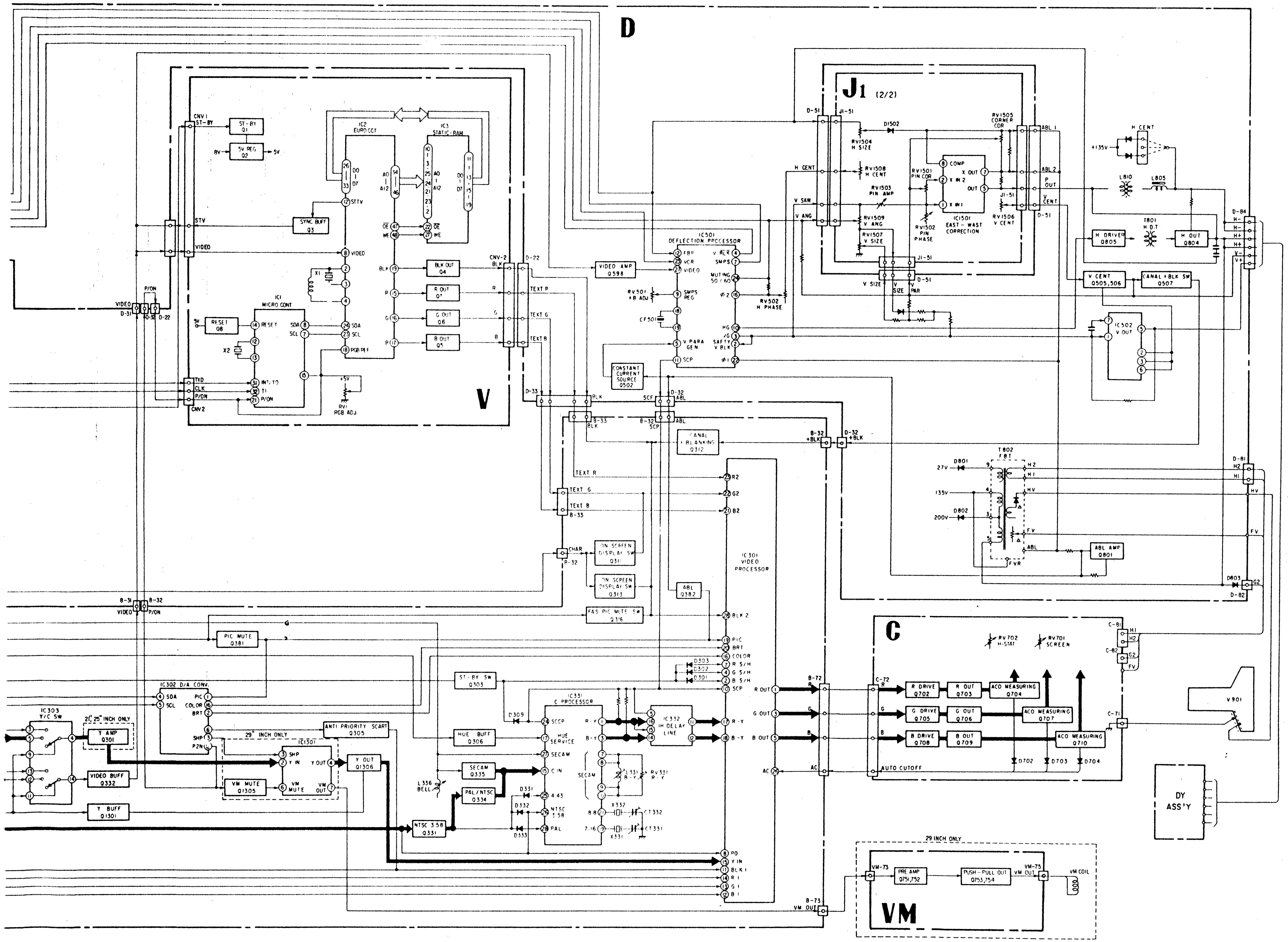




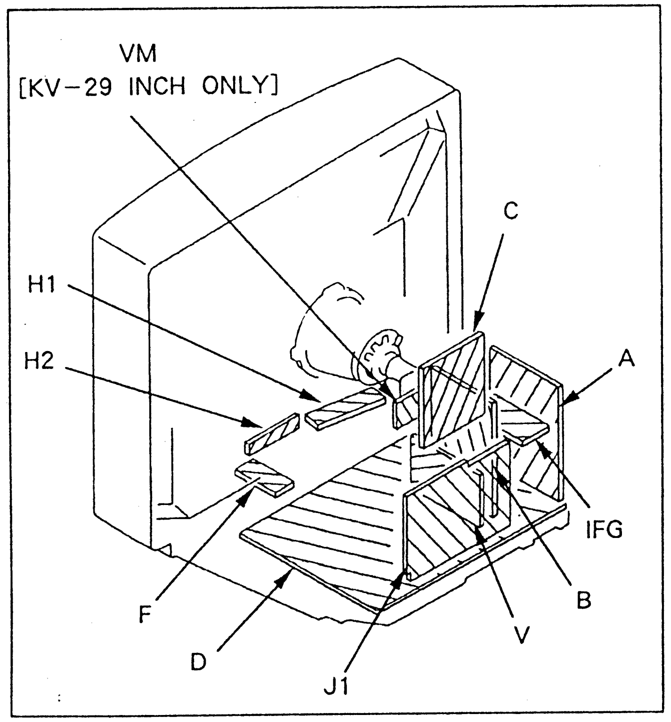
MEMO

SECTION 5
DIAGRAMS


F
F-61
F1601
S170
F-62
AC IN
A
TU101 UV816PLL
SCL SDA AGC IF IF
VIF101 IF63895
TO IFG BOARD
A-13
VIDEO
+12V
CH 2
4 LEVEL
CH 1
PRC
2IF
NICAM BUFF Q181
MPX
A-16
IC103 EXPANDER
SDA
SCL
PRC
MUTE SW Q125,126
A-11
4 LEVEL
AUDIO AMP Q115,116
L OUT
AUDIO AMP Q113,114
R OUT
VIDEO
AFT
SDA
SCL
A-12
A-15
J1 (1/2)
J1403 (Y/C)
COLOR IN
V IN
V OUT
L OUT
L IN
R OUT
R IN
MODE
IC1403 (1/2) COMPOSITE Y/C SW
Y OUT BUFF Q1403
Y OUT
IC1401 A/V SW
VIDEO OUT Q1401
VIDEO OUT BUFF Q1402
IC1403 (2/2)
C OUT BUFF Q1404
C OUT
V OUT
IC201 AUDIO CONT
AUDIO BUFF Q202
AUDIO BUFF Q201
AUDIO OUT
CN1401
L OUT
R OUT
LED 1
LED 2
J1-44
J1-43
J1-41
H1-43
V TV IN
F/R
Y/C
L IN
R IN
4 LEVEL
SDA
SCL
IC1402 SCART VIDEO OUT
J1402 (R,G,B)
R
G
B
BLK
MODE
MODE 1
MODE 2
DGC CHK
DGC
D-66
D-45
THP601
LF1601
LF1602
LF1603
D601
D-62
FAST ON/OFF Q604
D606
IC601 PRIMARY SMPS CTL
REG OUT Q602
D602
T601 SRT
D611
+135V
+14V
ST-BY SW Q603
12V REG IC608
+12V
D623
D624
ST BY SW Q606,609
D610
12V REG Q607
ST-BY SW Q601
+7V
ST-BY SW Q605
D612
5V REG IC604
+5V
AF V RECTIFIER D613,614
T602
VOL DET Q271
AUDIO MUTE Q251
IC251 L AMP
AUDIO MUTE Q261
IC261 R AMP
D-23
H1-4
H1-23
H105 HP
H1 (2/3)
ST-BY SW Q608
MUTE SW Q009
LED 1
LED 2
D-44
D012
IC001 TUNING CTL
MUTE
ST-BY
AFT
SYNC
SDA
SCL
VCP
NR
C2MT
SIRCS
OSD H
V OSD
Y/C
F/R
MODE 1
MODE 2
COS OUT
TDA
TCL
BLK
RESET
M/XM
A0
A1
A2
HUE
D-11
C1MT
C2MT
C4
D-12
IC003 AFT COMPARATORE
SYNC SEP Q003,004
VIDEO IN
IC005 MY MEMORY
CF001
Y/C SW Q005
F/R SW Q006
MODE 1 SW Q008
MODE 2 SW Q007
RESET Q010
50/60 SW Q001
IC002 ON SCREEN DISP
H1 (3/3)
S1651 MODE
S1653 -
S1652 +
H1-1
D-1
LED A
LED B
RES
SIRCS
D-2
H2-2
D1651
IC1651 IR DET
H2
+5V
D-32
CHAR
D-22
ST-BY
D-21
MUTE
B-32
ST BY
D-31
B-31
RGB SW Q002
DL411
Y AMP Q333
DL331
V AMP Q330
Y/C SW
D-33
B-33
BLK
B
D-41
C IN
Y IN
V IN


D
V
J1 (2/2)
C
VM
CNV1
ST-BY
ST-BY Q1
5V REG Q2
8V
5V
STTV
STV
VIDEO
SYNC BUFF Q3
IC2 EURO CCT
IC3 STATIC-RAM
D0 D7
A0 A12
OE
WE
BLK OUT Q4
R OUT Q7
G OUT Q6
B OUT Q5
RGB REF
IC1 MICRO CONT
RESET Q8
RESET
SDA
SCL
X1
X2
TXD
CLK
P/ON
CNV2
INT. TO
T1
RV1 RGB ADJ
+5V
CNV-2
D-22
TEXT P
TEXT G
TEXT B
D-31
D-32
P/ON
VIDEO AMP Q598
IC501 DEFLECTION PROCESSOR
FBP
VCR
VIDEO
V BLK
SMPS
MUTING 50/60
SMPS REG
RV501 +B ADJ
CF501
V PARA GEN
SCP
CONSTANT CURRENT SOURCE Q502
HG
VG
SAFETY V BLK
RV502 H PHASE
D-33
B-33
BLK
SCF
ABL
CANAL BLANKING Q312
B-32 +BLK
D-32 +BLK
D-51
J1-51
H CENT
V SAW
V ANG
D1502
RV1504 H SIZE
RV1508 H CENT
RV1503 PIN AMP
RV1509 V ANG
RV1507 V SIZE
RV1501 PIN COR
RV1502 PIN PHASE
COMP
X OUT
X IN 2
X IN 1
OUT
IC1501 EAST-WEST CORRECTION
RV1505 CORNER COR
RV1506 V CENT
ABL 1
ABL 2
P OUT
V CENT
V SIZE
V PAR
H CENT
+135V
L810
L805
T801 H.D.T
H DRIVER Q805
H OUT Q804
D-84
H-
H+
V-
V+
V CENT Q505,506
CANAL+BLK SW Q507
IC502 V OUT
T802 FBT
D801
D802
27V
135V
200V
H2
H1
HV
FV
ABL
FVR
ABL AMP Q801
D-81
D803
G2
D-82
TEXT R
TEXT G
TEXT B
CHAR
ON SCREEN DISPLAY SW Q311
ON SCREEN DISPLAY SW Q313
ABL Q382
FAS PIC MUTE SW Q316
IC301 VIDEO PROCESSOR
R2
G2
B2
BLK 2
PIC
BRT
COLOR
R S/H
G S/H
B S/H
SCP
R-Y
B-Y
PD
Y IN
BLK 1
R 1
G 1
B 1
D303
D302
D301
B-31
VIDEO
PIC MUTE Q381
IC302 D/A CONV.
SDA
SCL
PIC
COLOR
BRT
SHP
P2N
IC303 Y/C SW
21" 25" INCH ONLY
Y AMP Q301
VIDEO BUFF Q332
Y BUFF Q1301
29" INCH ONLY
IC1301
Y IN
Y OUT
VM MUTE Q1305
VM MUTE
VM OUT
ANTI PRIORITY SCART Q305
Y OUT Q1306
ST-BY SW Q303
HUE BUFF Q306
SECAM Q335
PAL/NTSC Q334
NTSC 3.58 Q331
L336 BELL
D309
D331
D332
D333
IC331 C PROCESSOR
SCCP
HUE SERVICE
SECAM
C IN
4.43
NTSC 3.58
PAL
X332
X331
CT332
CT331
RV331 R-Y
IC332 1H DELAY LINE
R OUT
G OUT
B OUT
AC
B-72
B-73
VM OUT
C-72
RV702 H-STAT
RV701 SCREEN
C-81
C-82
C-71
R DRIVE Q702
R OUT Q703
ACO MEASURING Q704
G DRIVE Q705
G OUT Q706
ACO MEASURING Q707
B DRIVE Q708
B OUT Q709
ACO MEASURING Q710
D702
D703
D704
AUTO CUTOFF
V901
DY ASS'Y
29 INCH ONLY
VM-73
PRE AMP Q751,752
PUSH-PULL OUT Q753,754
VM-75
VM OUT
VM COIL

5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in μF unless otherwise noted.
  pF : μμF 50WV or less are not indicated except for electrolytic.
- Indication of resistance, which dose not have one for rating electrical power, is as follows.

Pitch : 5mm Rating electrical power : ¼W

- Chip resistor is in 1/10W.
- All resistors are in ohms.
  kΩ = 1000Ω, MΩ = 1000KΩ
- : nonflammable resistor.
- : fusible resistor.
- Δ : internal component.
- ☐ : panel designation or adjustment for repair.
- All variable and adjustable resistors have charactristic curve B, unless otherwise noted.
- All voltages are in V.
- Readings are taken with a 10MΩ digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal produc-tion tolerances.
- ▬ : B + bus.
- ➡ : signal path.(RF)

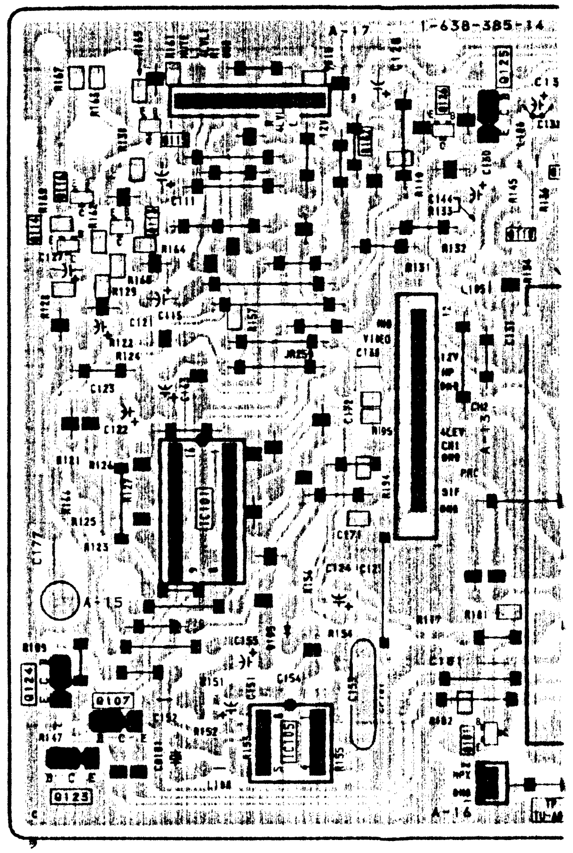
Reference information

RESISTOR	RN	: METAL FILM
	RC	: SOLID
	FPRD	: NONFLAMMABLE CARBON
	FUSE	: NONFLAMMABLE FUSIBLE
	RS	: NONFLAMMABLE METAL OXIDE
	RB	: NONFLAMMABLE CEMENT
	RW	: NONFLAMMABLE WIREWOUND
	※	: ADJUSTMENT RESISTOR
COIL	LF-8L	: MICRO INDUCTOR
CAPACITOR	TA	: TANTALUM
	PS	: STYROL
	PP	: POLYPROPYLENE
	PT	: MYLAR
	MPS	: METALIZED POLYESTER
	MPP	: METALIZED POLYPROPYLENE
	ALB	: BIPOLAR
	ALT	: HIGH TEMPERATURE
	ALR	: HIGH RIPPLE

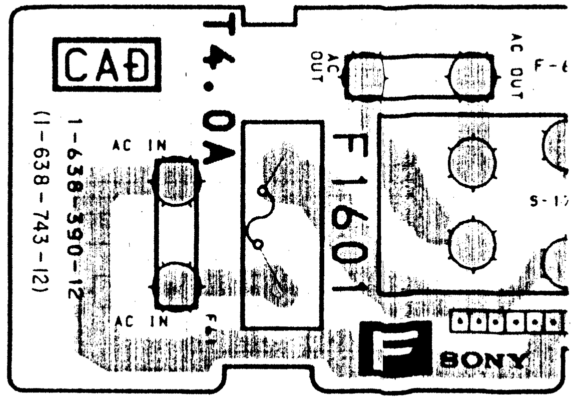
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

A [TUNER, SIF, VIF] F [AC IN, POWER SW

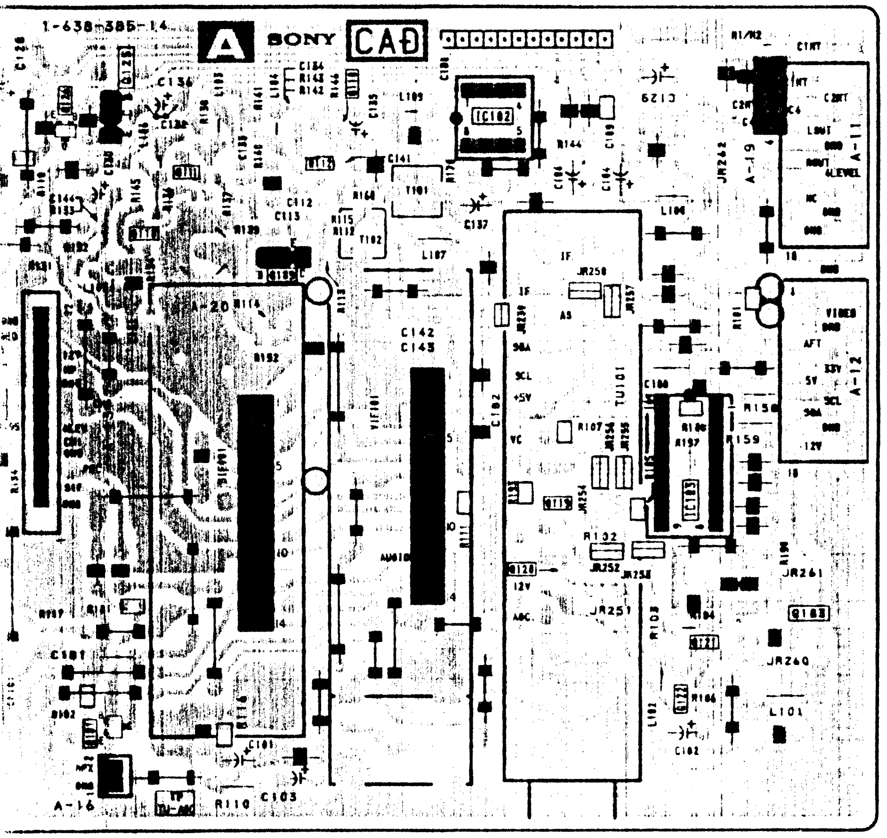
−A Board−

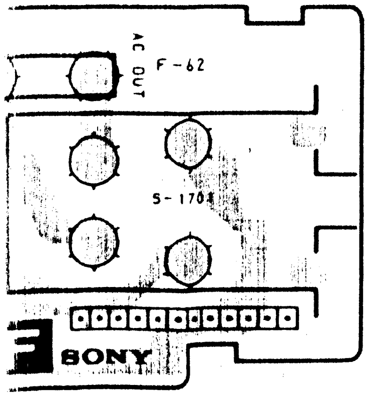


−F Board−

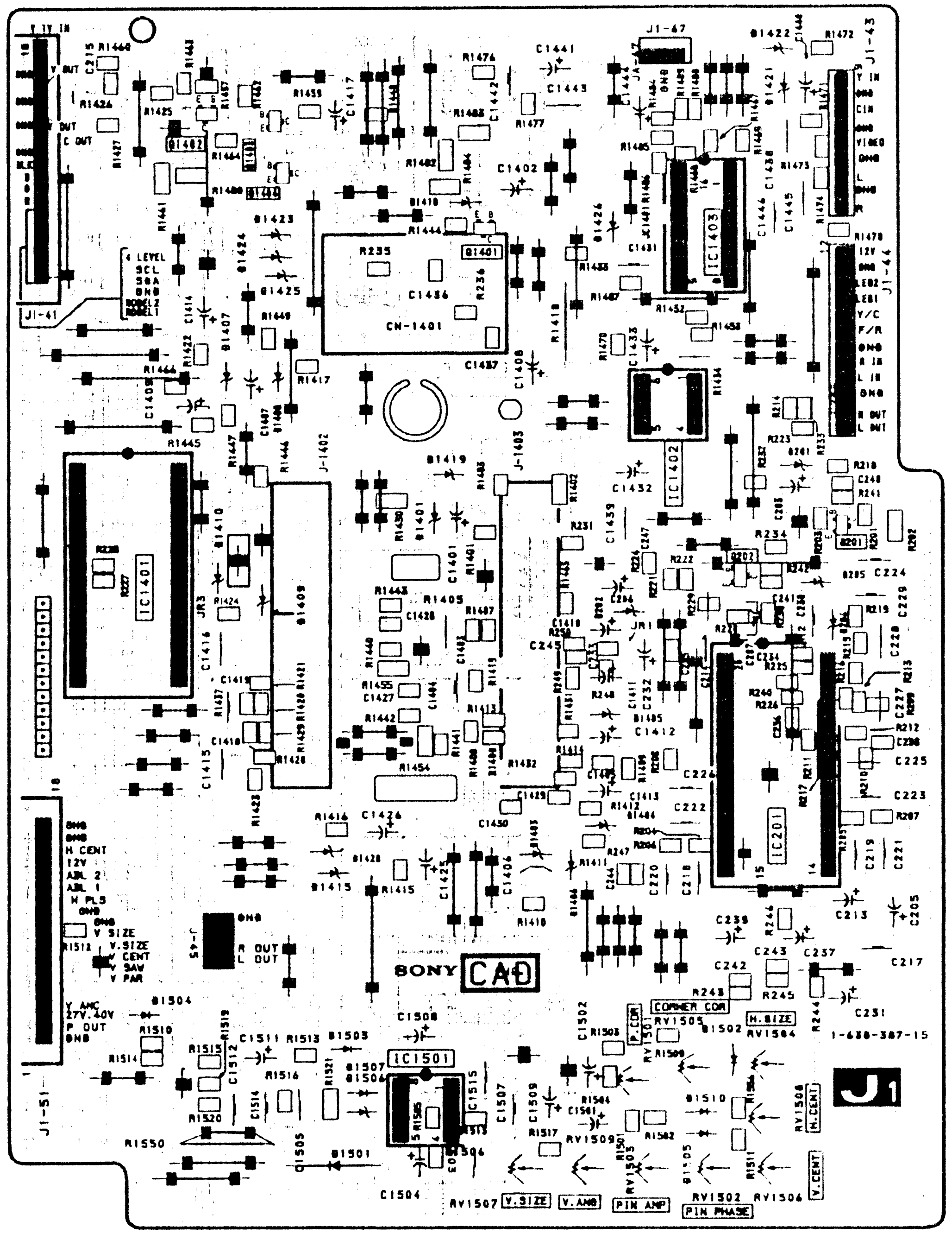


[AC IN, POWER SW] **J1** [AUDIO CONTROL, AV INPUT, Y/C INPUT, SCART VIDEO OUT, EAST-WEST CORRECTION] **H1** [CONTROL SW, AV INPUT HEADPHONE] **H2** [SIRCS, RECEIVER, INDICATOR] **VM** [VM AMP]

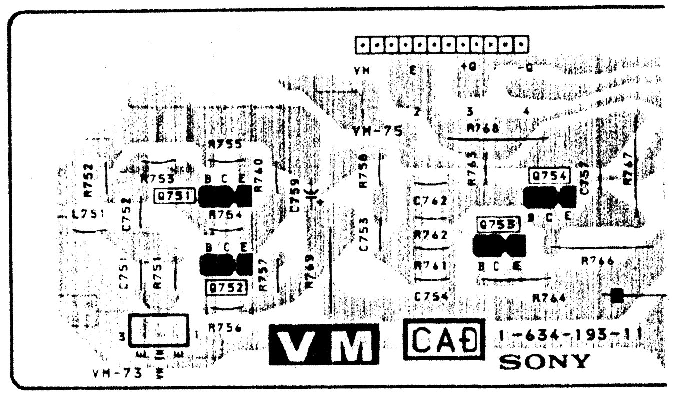

1-638-385-14
A
SONY
CAD
IC182
IC183
TU101
A-11
A-12
A-16
A-19
A-20


AC OUT
F-62
S-1703
SONY

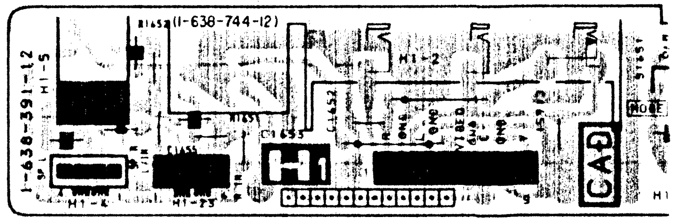
-J1 Board-


J1-41
J1-43
J1-44
J1-47
J1-51
J1-45
IC1401
IC1402
IC1403
IC1501
IC201
CN-1401
SONY
CAD
CORNER COR
H.SIZE
H.CENT
V.CENT
V.SIZE
V.AMB
PIN AMP
PIN PHASE
1-638-387-15
J1

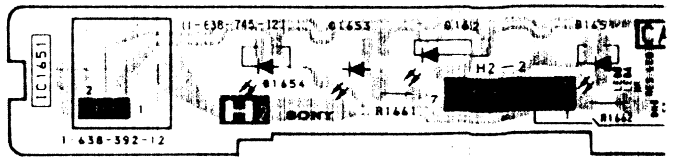
-VM Board- (29 INCH ONLY)


VM-75
VM-73
VM
CAD
1-634-193-11
SONY

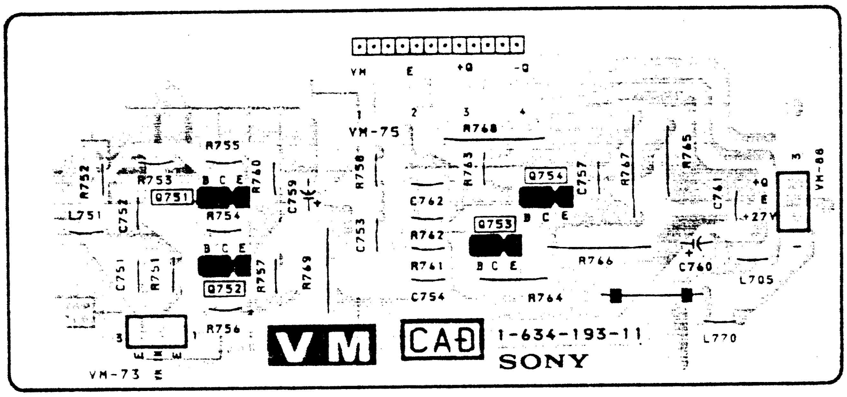
-H1 Board-


(1-638-744-12)
1-638-391-12
H1-5
H1-2
H1-4
H1-23
H1
CAD

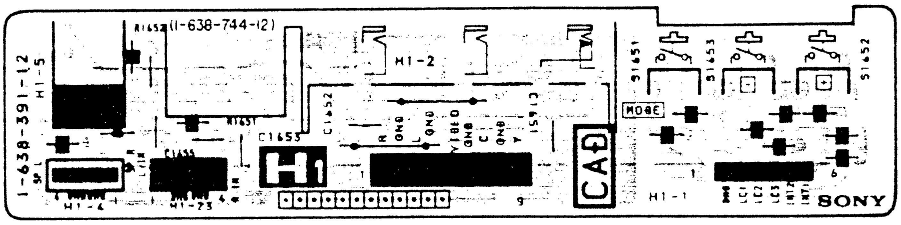
-H2 Board-


(1-638-745-12)
IC1651
H2-2
H2
SONY
1-638-392-12

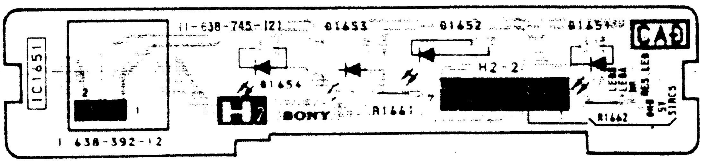
–VM Board– (29 INCH ONLY)

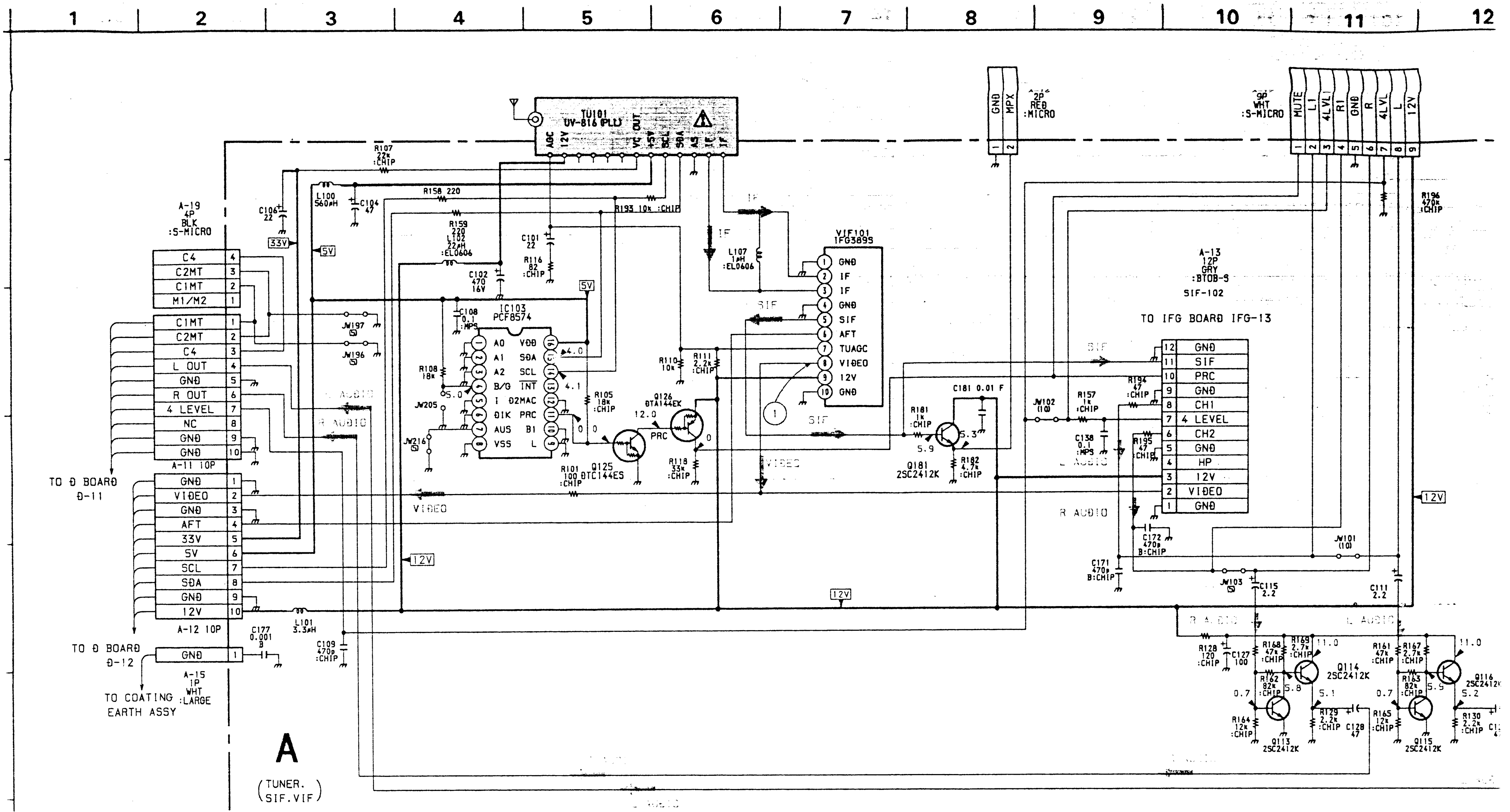

VM
E
+Q
-Q
VM-75
R768
R755
R752
R753
Q751
B C E
R760
C759
R758
R763
Q754
C757
R767
R765
VM-88
L751
C752
R754
C753
C762
Q753
C761
+27V
R762
R766
C760
C751
R751
Q752
R757
R769
R761
C754
R764
L705
R756
VM-73
VM
CAD
1-634-193-11
SONY
L770

–H1 Board–


1-638-391-12
H1-5
R1652
(1-638-744-12)
H1-2
S1651
S1653
S1652
C1652
C1651
MODE
R1651
C1653
C1655
H1
CAD
H1-4
H1-73
H1-1
SONY

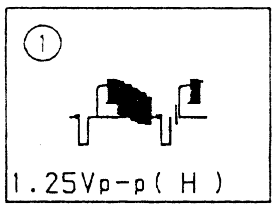
–H2 Board–

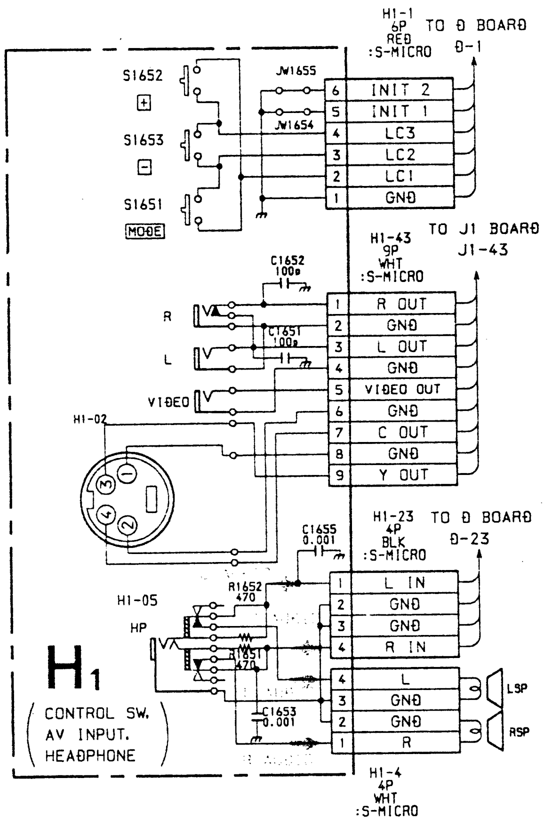

IC1651
(1-638-745-12)
D1653
D1652
D1654
CAD
D1654
H2-2
H2
SONY
R1661
R1662
1 638-392-12


1
2
3
4
5
6
7
8
9
10
11
12
TU101
UV-816 (PLL)
VIF101
IFG3895
IC103
PCF8574
A-19 4P BLK :S-MICRO
A-11 10P
A-12 10P
A-15 1P WHT :LARGE
A-13 12P GRY :BTOB-S
SIF-102
TO IFG BOARD IFG-13
TO Ә BOARD Ә-11
TO Ә BOARD Ә-12
TO COATING EARTH ASSY
2P RED :MICRO
9P WHT :S-MICRO
C4
C2MT
C1MT
M1/M2
L OUT
GNӘ
R OUT
4 LEVEL
NC
VIDEO
AFT
33V
5V
SCL
SDA
12V
SIF
PRC
CH1
CH2
HP
MUTE
4LVL
A
(TUNER. SIF.VIF)

B-SS4114<AEP>

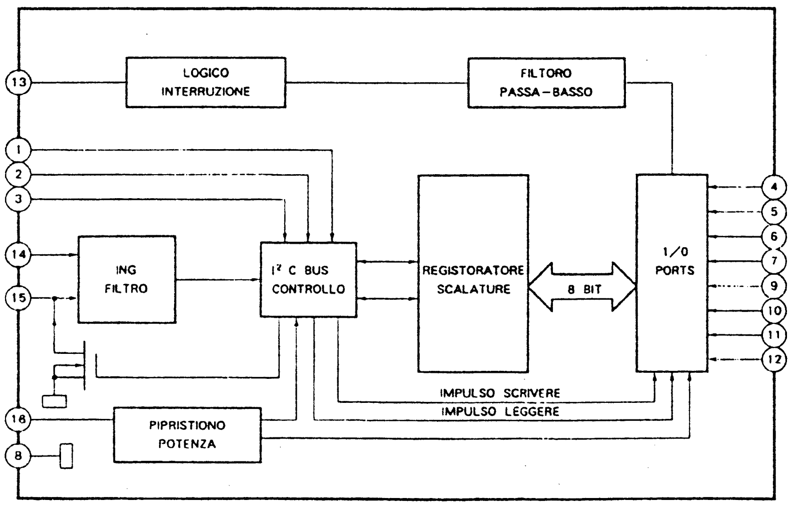
• WAVEFORMS A BOARD




H1-1 6P RED :S-MICRO TO Ә BOARD Ә-1
S1652
S1653
S1651
MODE
INIT 2
INIT 1
LC3
LC2
LC1
GNӘ
H1-43 9P WHT :S-MICRO TO J1 BOARD J1-43
R OUT
L OUT
VIDEO OUT
C OUT
Y OUT
H1-02
H1-23 4P BLK :S-MICRO TO Ә BOARD Ә-23
L IN
R IN
H1-05
HP
LSP
RSP
H1-4 4P WHT :S-MICRO
H1
(CONTROL SW, AV INPUT, HEADPHONE)

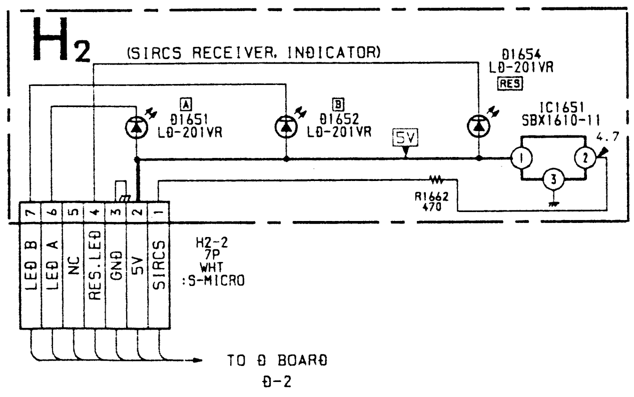
B-SS4114<AEP>-H1.

A BOARD IC103 PCF8574

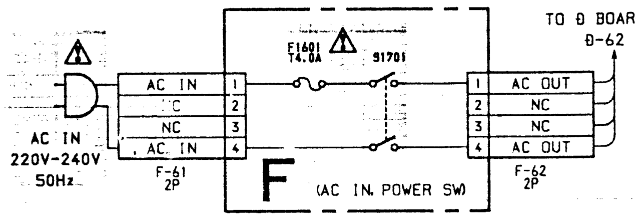

LOGICO INTERRUZIONE
FILTORO PASSA-BASSO
ING FILTRO
I2 C BUS CONTROLLO
REGISTORATORE SCALATURE
8 BIT
I/O PORTS
IMPULSO SCRIVERE
IMPULSO LEGGERE
PIPRISTIONO POTENZA
13
1
2
3
14
15
16
8
4
5
6
7
9
10
11
12

• A BOARD

IC103	PCF8574	EXPANDER
Q113	2SC2412K	AUDIO AMP
Q114	2SC2412K	AUDIO AMP
Q115	2SC2412K	AUDIO AMP
Q116	2SC2412K	AUDIO AMP
Q125	DTC144ES	MUTE SW
Q126	DTA144EK	MUTE SW
Q181	2SC2412K	NICAM BUFFER

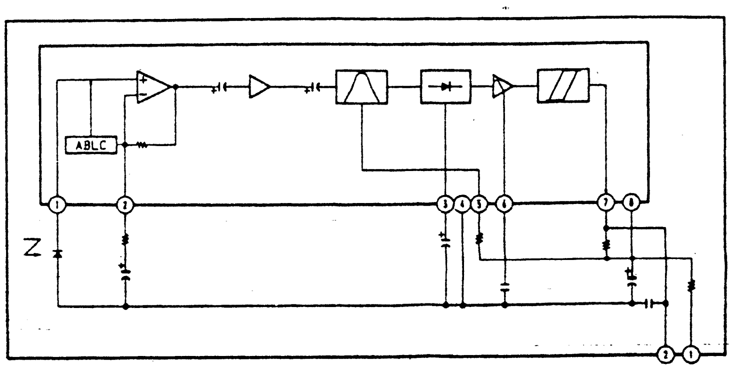

H2
(SIRCS RECEIVER, INDICATOR)
D1651 LD-201VR
D1652 LD-201VR
D1654 LD-201VR
IC1651 SBX1610-11
H2-2 7P WHT :S-MICRO
LED B
LED A
NC
RES.LED
GND
5V
SIRCS
TO Ә BOARD Ә-2

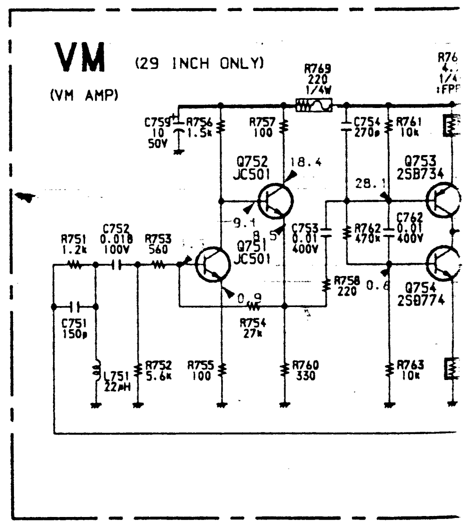
B-SS4114<AEP>-H2.


AC IN 220V-240V 50Hz
F-61 2P
AC IN
NC
F1601 T4.0A
S1701
F (AC IN, POWER SW)
AC OUT
F-62 2P
TO Ә BOARD Ә-62

B-SS4114<AEP>-F..

H2 BOARD IC1651 SBX1610-11


ABLC
Z
1
2
3
4
5
6
7
8

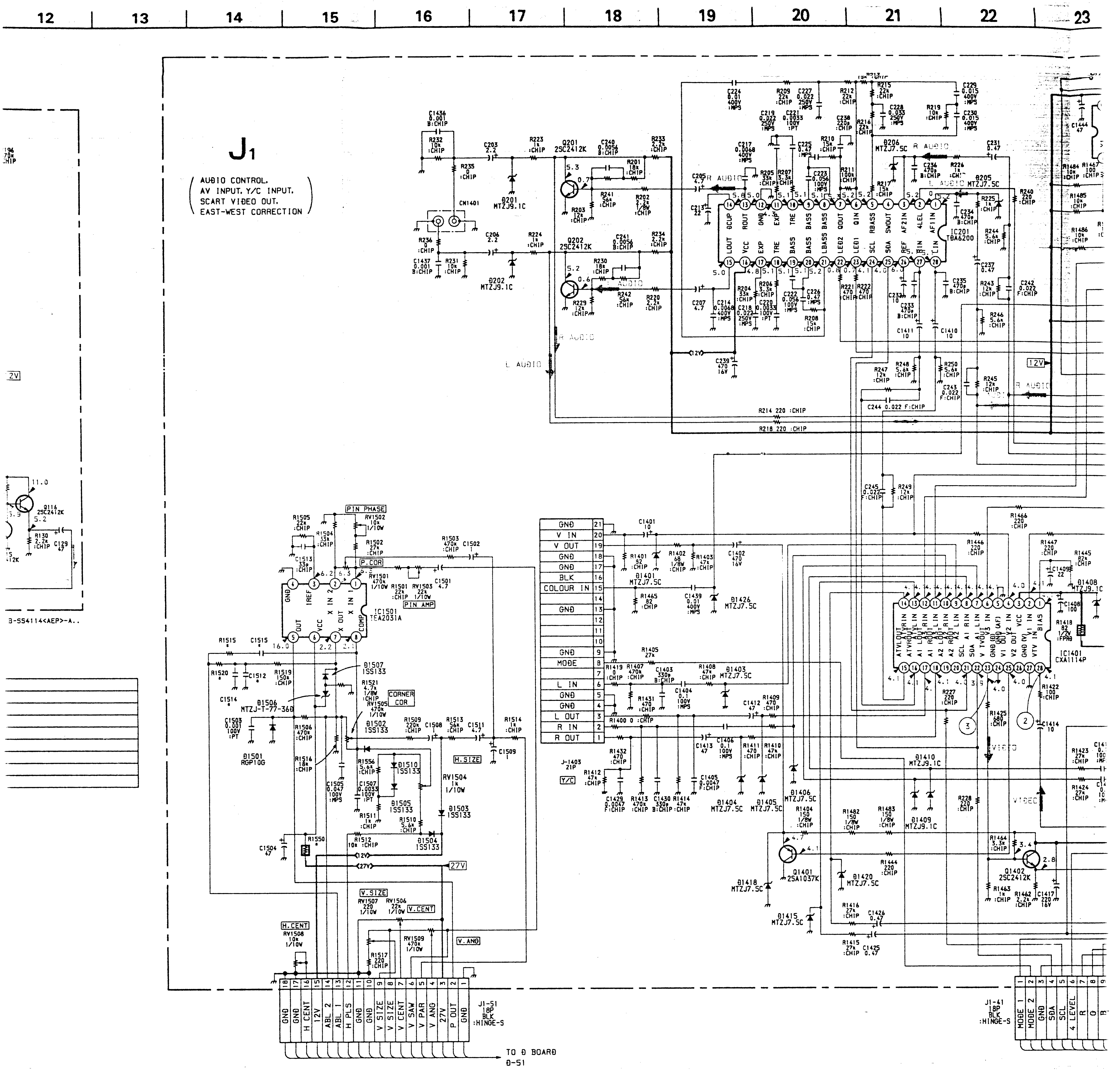

VM (29 INCH ONLY)
(VM AMP)
Q751 JC501
Q752 JC501
Q753 2SB734
Q754 2SD774

• H2 BOARD

IC1651	SBX1610-11	INFRARED RECIEVER
D1651	LD-201VR	AUDIO CHANNEL A INDICATOR
D1652	LD-201VR	AUDIO CHANNEL B INDICATOR
D1654	LD-201VR	RESET

• VM BOARD (29 INCH ONLY)

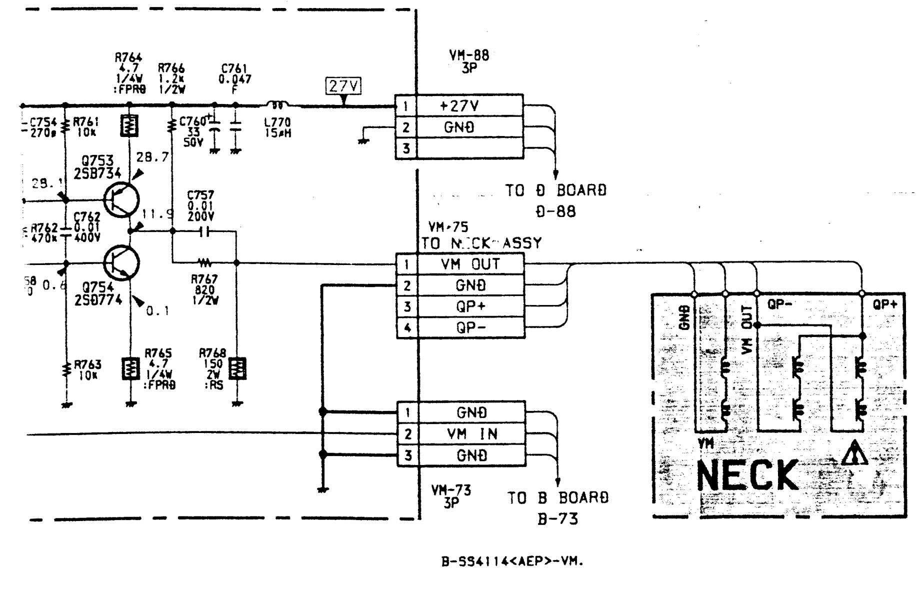
Q751	JC501	REF-AMP
Q752	JC501	REF-AMP
Q753	2SB734	PUSH-PULL OUT
Q754	2SD774	PUSH-PULL OUT


12
13
14
15
16
17
18
19
20
21
22
23
J1
AUDIO CONTROL,
AV INPUT, Y/C INPUT,
SCART VIDEO OUT,
EAST-WEST CORRECTION
IC201 TDA6200
IC1401 CXA1114P
IC1501 TEA2031A
Q201 2SC2412K
Q202 2SC2412K
Q1401 2SA1037K
Q1402 2SC2412K
Q116 2SC2412K
CN1401
R AUDIO
L AUDIO
VIDEO
PIN PHASE
P.COR
PIN AMP
CORNER COR
H.SIZE
V.SIZE
V.CENT
V.ANG
H.CENT
12V
27V
J-1403 21P
Y/C
GND
V IN
V OUT
GND
GND
BLK
COLOUR IN
GND
GND
MODE
L IN
GND
GND
L OUT
R IN
R OUT
J1-51 18P BLK :HINGE-S
GND
GND
H CENT
12V
ABL 2
ABL 1
H PLS
GND
V SIZE
V SIZE
V CENT
V SAW
V PAR
V ANG
27V
P OUT
GND
TO D BOARD D-51
J1-41 18P BLK :HINGE-S
MODE 1
MODE 2
GND
SDA
SCL
4 LEVEL
R
G
B
B-SS4114<AEP>-A..

J1 BOARD * MARK

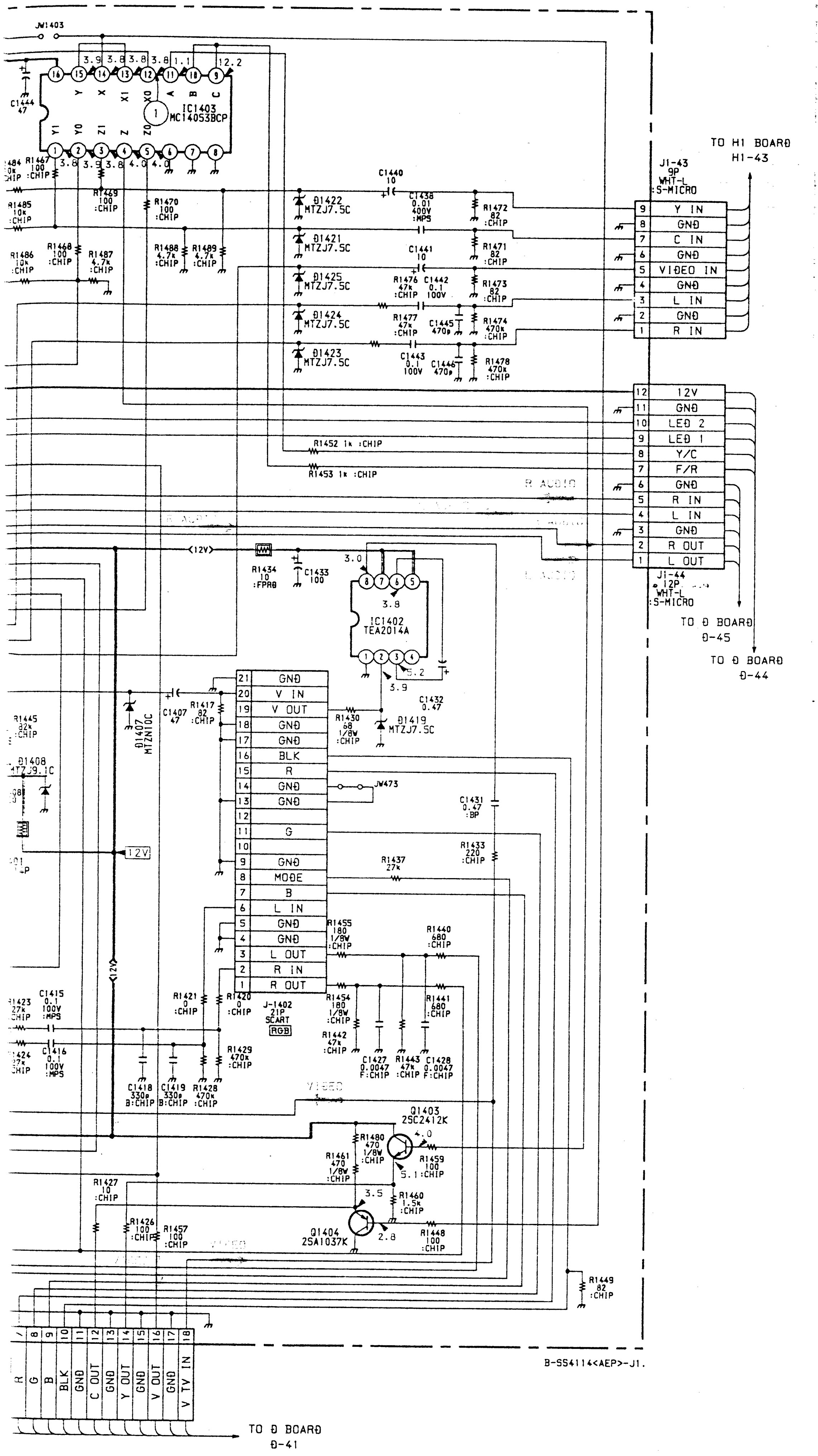
	21″	25″	29″
C1512	0.0068 400V	0.0068 400V	–
C1514	0.0022 250V	0.0068 250V	–
C1515	820P	820P	–
R1515	680K	680K	–
R1520	470K	470K	390K
R1550	JW	JW	1 1W F

– : NOT MOUNTED


VM-88 3P
+27V
GND
TO D BOARD D-88
27V
Q753 2SB734
Q754 2SD774
L770 15μH
VM-75 TO NECK ASSY
VM OUT
GND
QP+
QP-
GND
VM IN
GND
VM-73 3P
TO B BOARD B-73
GND
VM OUT
QP-
QP+
VM
NECK
B-SS4114<AEP>-VM.

.Y)

IP
IP
ULL OUT
ULL OUT

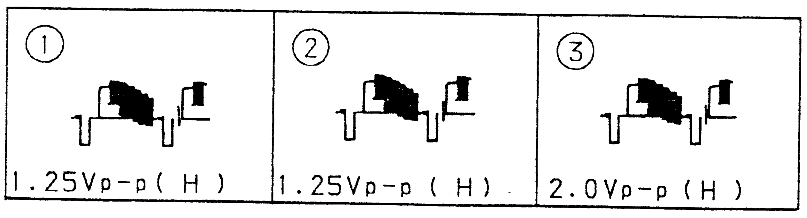

JW1403
IC1403
MC14053BCP
TO H1 BOARD
H1-43
J1-43
9P
WHT-L
:S-MICRO
Y IN
GND
C IN
GND
VIDEO IN
GND
L IN
GND
R IN
12V
GND
LED 2
LED 1
Y/C
F/R
GND
R IN
L IN
GND
R OUT
L OUT
J1-44
12P
WHT-L
:S-MICRO
TO D BOARD
D-45
TO D BOARD
D-44
D1422
MTZJ7.5C
D1421
MTZJ7.5C
D1425
MTZJ7.5C
D1424
MTZJ7.5C
D1423
MTZJ7.5C
R1452 1k :CHIP
R1453 1k :CHIP
IC1402
TEA2014A
C1433
100
R1434
10
:FPRB
D1419
MTZJ7.5C
D1407
MTZN10C
D1408
MTZJ9.1C
GND
V IN
V OUT
GND
GND
BLK
R
GND
GND
G
GND
MODE
B
L IN
GND
GND
L OUT
R IN
R OUT
J-1402
21P
SCART
JW473
Q1403
2SC2412K
Q1404
2SA1037K
R
G
B
BLK
GND
C OUT
GND
Y OUT
GND
V OUT
GND
V TV IN
TO D BOARD
D-41
B-SS4114<AEP>-J1.

· J1 BOARD

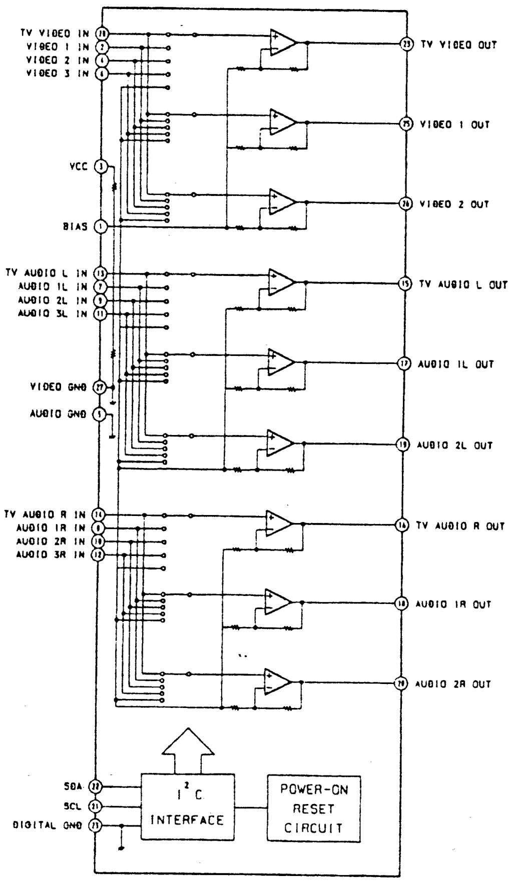
IC201	TDA6200	AUDIO CONTROL
IC1401	CXA1114P	AV SW
IC1402	TEA2014A	SCART VIDEO OUT
IC1403	MC14053BCP	COMPOSITE Y/C SW
IC1501	TEA2031A	EAST-WEST CORRECTION
Q201	2SC2412K	AUDIO R BUFF
Q202	2SC2412K	AUDIO L BUFF
Q1401	2SA1037K	VIDEO OUT
Q1402	2SC2412K	VIDEO OUT BUFF
Q1403	2SC2412K	Y OUT BUFF
Q1404	2SA1037K	C OUT BUFF
D201	MTZJ9.1C	PROTECT
D202	MTZJ9.1C	PROTECT
D205	MTZJ7.5C	PROTECT
D206	MTZJ7.5C	PROTECT
D1401	MTZJ7.5C	PROTECT
D1403	MTZJ7.5C	PROTECT
D1404	MTZJ7.5C	PROTECT
D1405	MTZJ7.5C	PROTECT
D1406	MTZJ7.5C	PROTECT
D1407	MTZN10C	PROTECT
D1408	MTZJ9.1C	REG
D1409	MTZJ9.1C	PROTECT
D1410	MTZJ9.1C	PROTECT
D1415	MTZJ7.5C	PROTECT
D1418	MTZJ7.5C	PROTECT
D1419	MTZJ7.5C	PROTECT
D1420	MTZJ7.5C	PROTECT
D1421	MTZJ7.5C	PROTECT
D1422	MTZJ7.5C	PROTECT
D1423	MTZJ7.5C	PROTECT
D1424	MTZJ7.5C	PROTECT
D1425	MTZJ7.5C	PROTECT
D1426	MTZJ7.5C	PROTECT
D1501	RGP10G	PROTECT
D1502	1SS133	DECOUPLING H SIZE
D1503	1SS133	CLIPPING V PARABORA
D1504	1SS133	CLIPPING H PULSE
D1505	1SS133	REG
D1506	MTZJ36D	PROTECT
D1507	1SS133	PROTECT
D1510	1SS133	REG

.9"
K
V F
NTED

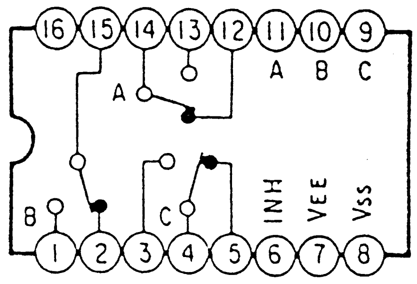
· WAVEFORMS J1 BOARD



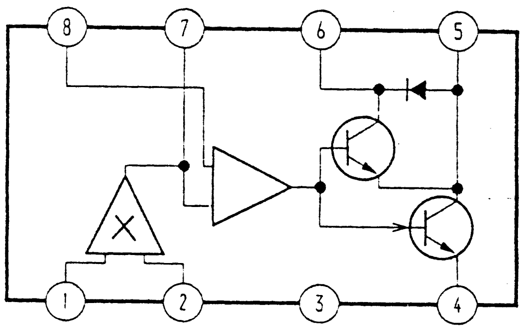
J1 BOARD IC1401 CXA1114P


TV VIDEO IN
VIDEO 1 IN
VIDEO 2 IN
VIDEO 3 IN
VCC
BIAS
TV AUDIO L IN
AUDIO 1L IN
AUDIO 2L IN
AUDIO 3L IN
VIDEO GND
AUDIO GND
TV AUDIO R IN
AUDIO 1R IN
AUDIO 2R IN
AUDIO 3R IN
SDA
SCL
DIGITAL GND
TV VIDEO OUT
VIDEO 1 OUT
VIDEO 2 OUT
TV AUDIO L OUT
AUDIO 1L OUT
AUDIO 2L OUT
TV AUDIO R OUT
AUDIO 1R OUT
AUDIO 2R OUT
I²C
INTERFACE
POWER-ON
RESET
CIRCUIT

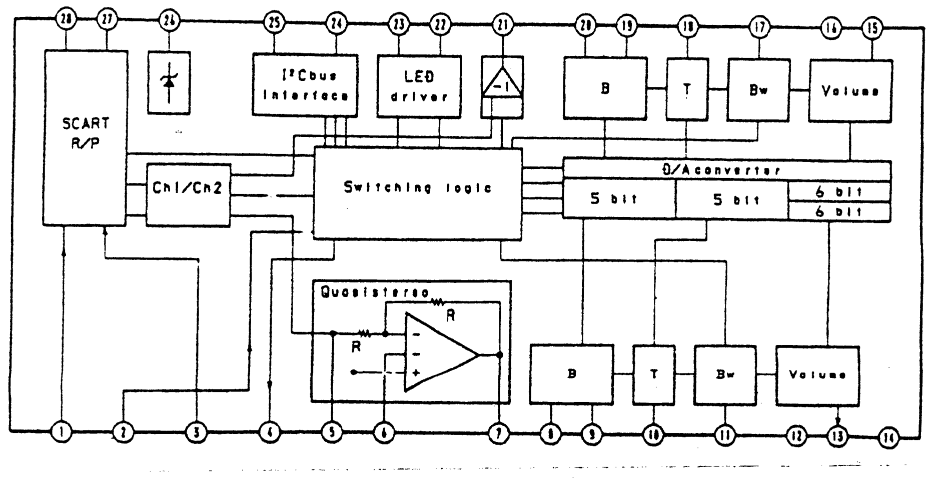
J1 BOARD IC1403 MC14053BCP


16
15
14
13
12
11
10
9
A
B
C
A
B
C
INH
VEE
Vss
1
2
3
4
5
6
7
8

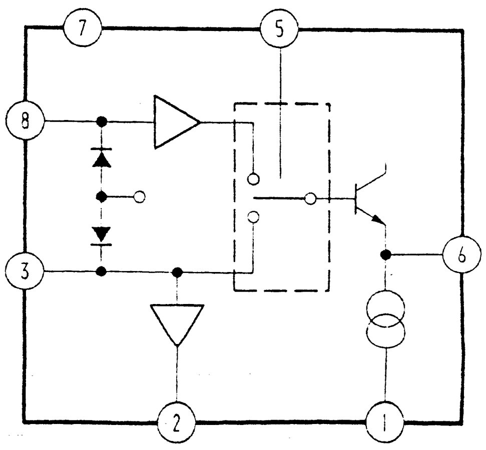
J1 BOARD IC1501 TEA2031A



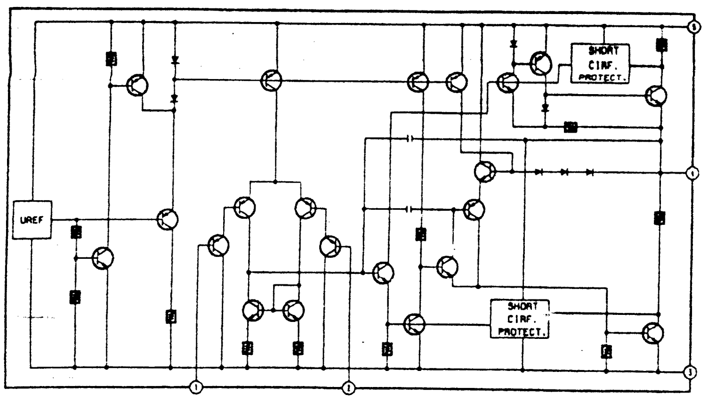
J1 BOARD IC201 TDA6200


28
27
26
25
24
23
22
21
20
19
18
17
16
15
SCART
R/P
I²Cbus
Interface
LED
driver
B
T
Bw
Volume
Ch1/Ch2
Switching logic
D/Aconverter
5 bit
5 bit
6 bit
6 bit
Quasistereo
R
R
B
T
Bw
Volume
1
2
3
4
5
6
7
8
9
10
11
12
13
14

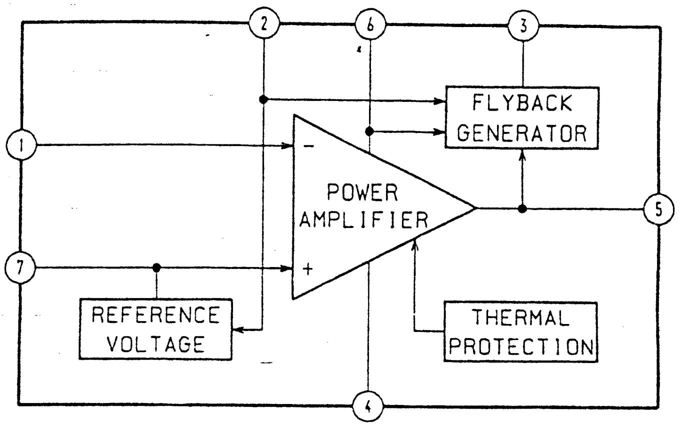
J1 BOARD IC1402 TEA2014A



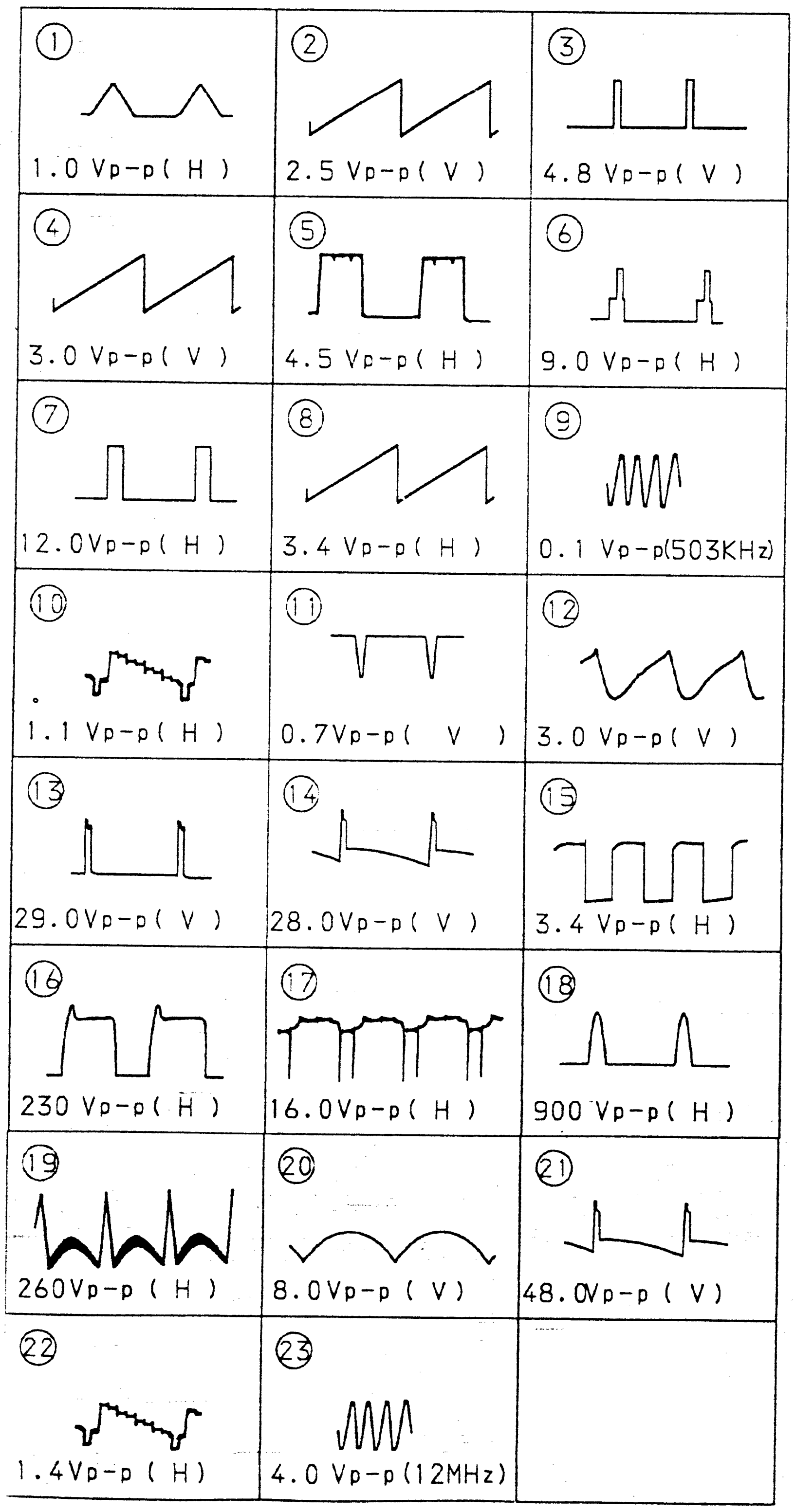
D BOARD IC251/261 TDA2050


UREF
SHORT CIRC. PROTECT.
SHORT CIRC. PROTECT.

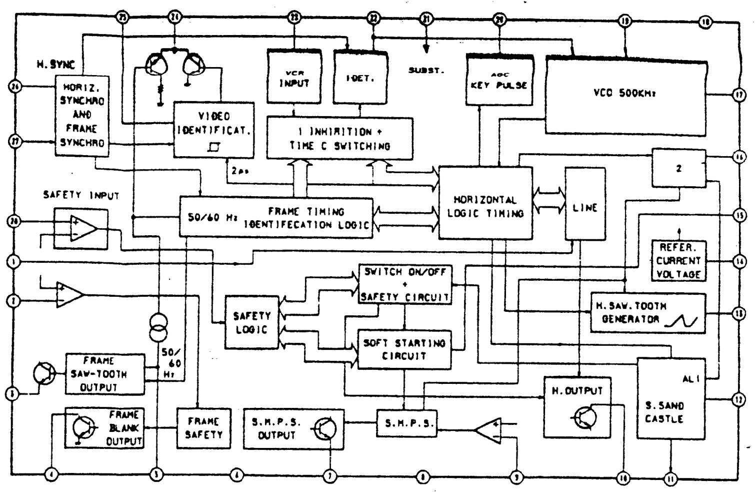
D BOARD IC502 TDA8170


FLYBACK GENERATOR
POWER AMPLIFIER
REFERENCE VOLTAGE
THERMAL PROTECTION
1
2
3
4
5
6
7

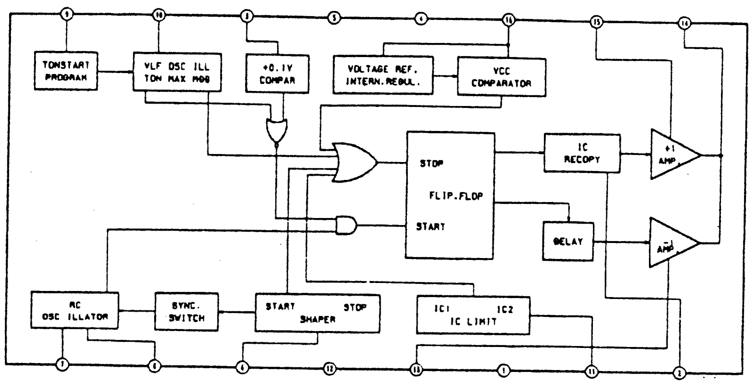
• WAVEFORMS D BOARD



D BOARD IC501 TEA2028B


H.SYNC
HORIZ. SYNCHRO AND FRAME SYNCHRO
VIDEO IDENTIFICAT.
VCR INPUT
IDET.
SUBST.
AGC KEY PULSE
VCO 500KHz
1 INHIBITION + TIME C SWITCHING
2µs
SAFETY INPUT
50/60 Hz FRAME TIMING IDENTIFECATION LOGIC
HORIZONTAL LOGIC TIMING
LINE
2
REFER. CURRENT VOLTAGE
SWITCH ON/OFF + SAFETY CIRCUIT
SAFETY LOGIC
SOFT STARTING CIRCUIT
H.SAW.TOOTH GENERATOR
50/60 Hz
FRAME SAW-TOOTH OUTPUT
H.OUTPUT
AL1
S.SAND CASTLE
FRAME BLANK OUTPUT
FRAME SAFETY
S.M.P.S. OUTPUT
S.M.P.S.

D BOARD IC601 TEA2260


TONSTART PROGRAM
VLF OSC ILL TON MAX MOD
+0.1V COMPAR
VOLTAGE REF. INTERN.REGUL.
VCC COMPARATOR
STOP
FLIP.FLOP
START
IC RECOPY
+1 AMP
DELAY
-1 AMP
RC OSC ILLATOR
SYNC. SWITCH
START STOP SHAPER
IC1 IC2 IC LIMIT

D BOARD ＊ MARK

	21″	25″	29″		21″	25″	29″
C519	0.47	0.47	0.33	L806	DCC-H	DRAM CORE (CDI)	HCC DUST CORE 3.9mH
C526	27P	27P	22P				
C536	4.7 16V	10 16V	10 16V	L810	WITH CORE	PMC	PMT
C617	220 25V	100 50V	100 50V				
C620	1 63V	0.47 50V	0.47 50V	R077	1K	–	1K
C811	1 200V	2 200V	2 200V	R525	1K	1K	–
C815	1 200V	1 200V	0.82 200V	R531	–	120K	120K
C817	0.0106 1.4KV	0.015 1.4KV	0.017 1.4KV	R532	–	1K	1K
C821	680P 2KV	680P 2KV	470P 2KV	R533	180	0	0
				R535	4.7M	2.2M	2.2M
D-88	–	–	3P	R545	39K	22K	22K
				R547	5.6K	3.3K	3.3K
D506	DA204K	DA204K	–	R548	1.2 1W F	1 1W F	1 1W F
D509	–	1SS133	1SS133	R549	470 2W F	390 2W F	390 2W F
D514	5mm JW	5mm JW	1SS133	R552	1.2K 1W	–	–
D515	–	–	1SS133	R561	–	–	270K
D807	–	ERC26-15S	ERC06-15S	R570	–	–	680
D808	ERD28-08S	ERD29-08J	ERD29-08J	R600	–	1	1
				R603	15 3W F	12 3W F	12 3W F
JW202	–	–	5mm	R607	4.7K	4.7K	5.6K
JW203	5mm	5mm	–	R631	27K 2W	27K 2W	–
JW204	5mm	5mm	–	R643	0.15 2W F	0.12 2W F	0.12 2W F
JW205	–	–	5mm	R811	100 1W	22 2W F	22 2W F
JW206	5mm	5mm	–	R812	75K 1/2W	68K 1/2W	51K 1/2W
JW207	5mm	5mm	–	R825	1 1W F	0.47 1W F	0.47 1W F
JW216	15mm	15mm	–	R5503	4.7	4.7	10
JW229	10mm	10mm	–	R5506	–	–	12K
L801	–	–	3.9mH				

– : NOT MOUNTED

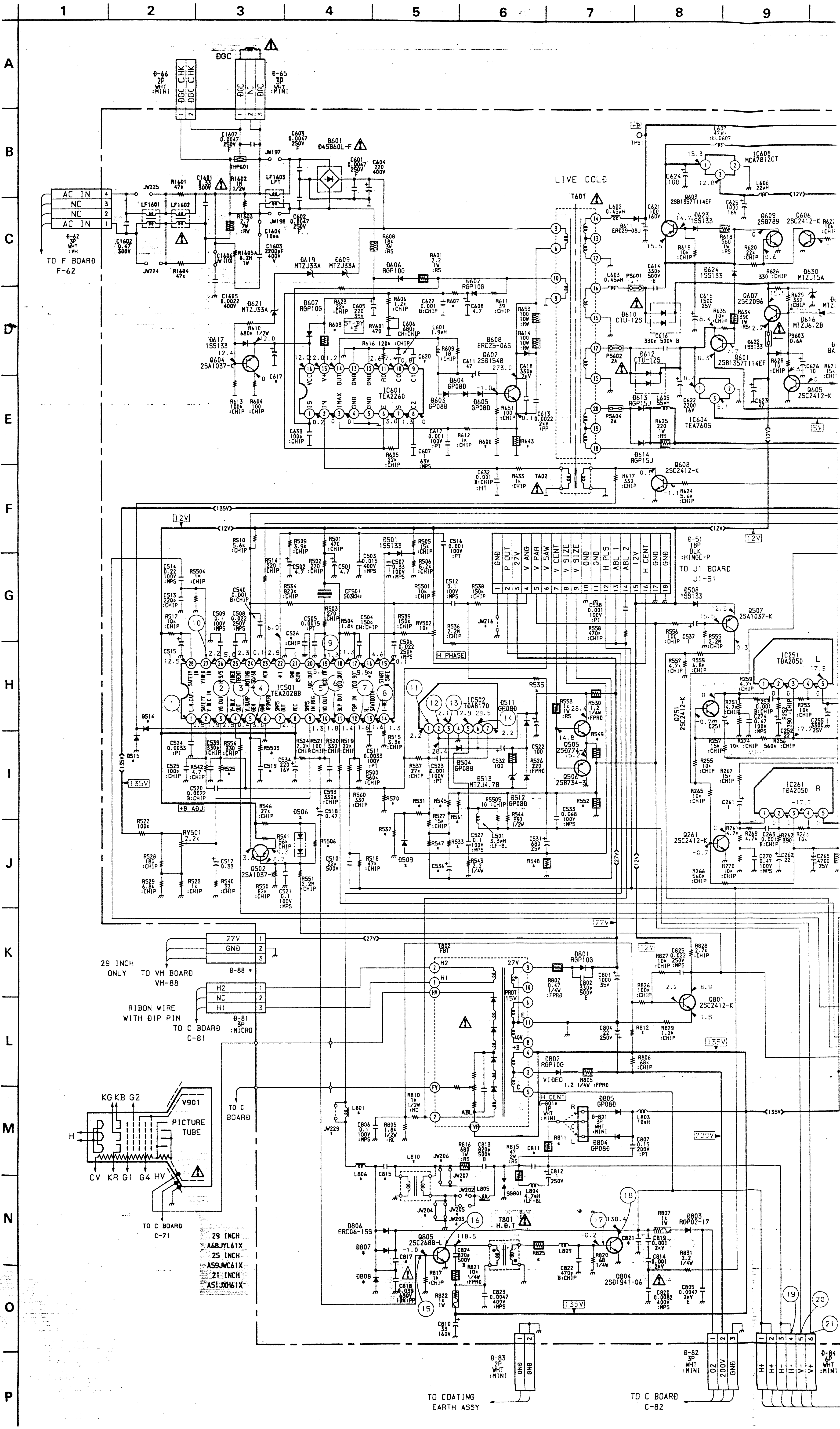
• D BOARD

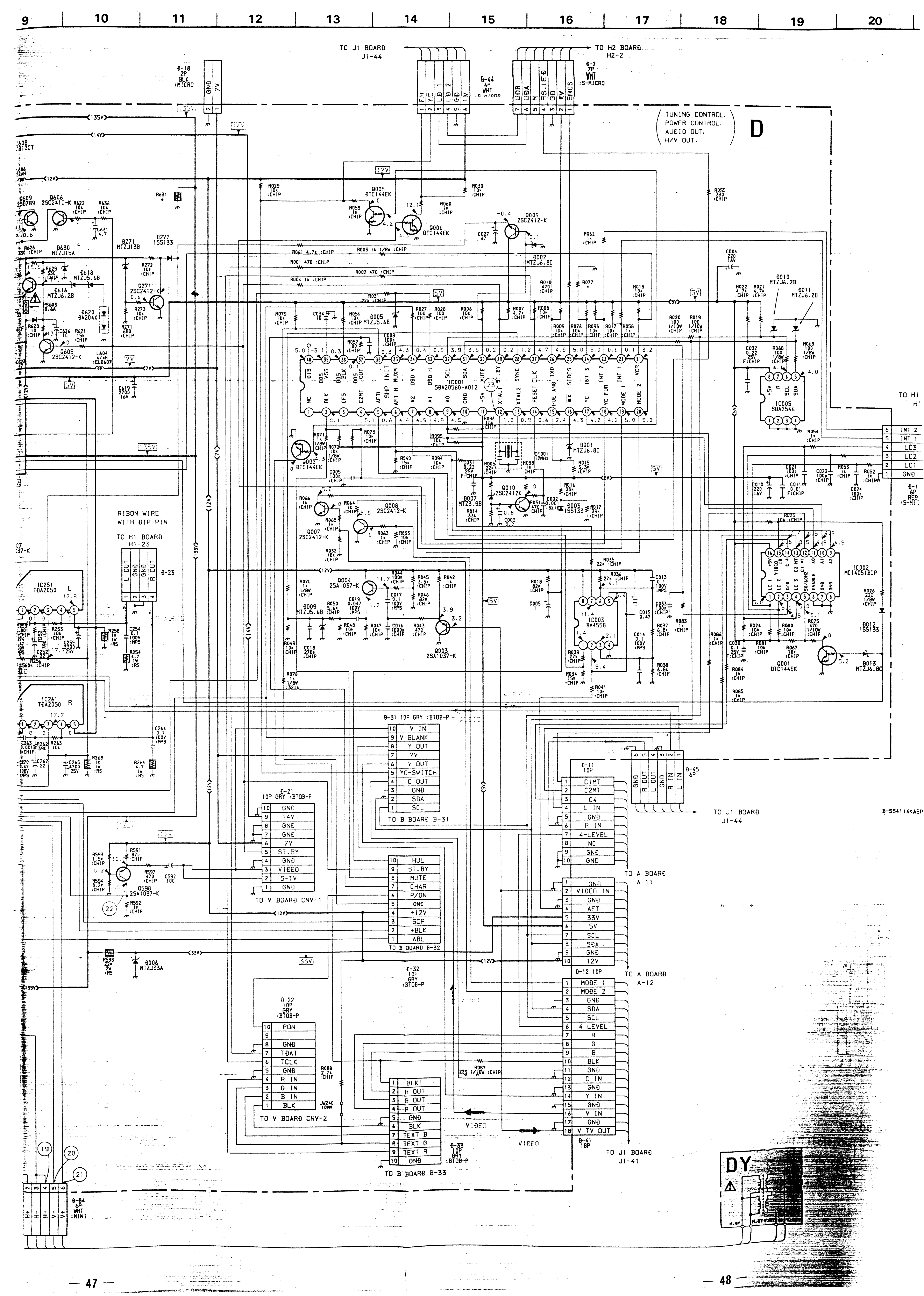
IC001	SDA20560-A012	TUN
IC002	MC14051BCP	ON S
IC003	BA4558	AFT
IC005	SDA2546	MY
IC251	TDA2050	AUDI
IC261	TDA2050	AUDI
IC501	TEA2028B	DEFLE
IC502	TDA8170	V OU
IC601	TEA2260	PRIM
IC604	TEA7605	+ 5V
IC608	MC7812CT	+ 12V
Q001	DTC144EK	50/6
Q002	DTC144EK	BLK S
Q003	2SA1037K	SYNC
Q004	2SA1037K	SYNC
Q005	DTC144EK	Y/C
Q006	DTC144EK	FRONT
Q007	2SC2412K	MODE
Q008	2SC2412K	MODE
Q009	2SC2412K	MUTE
Q010	2SC2412K	RESET
Q251	2SC2412K	AUDIO
Q261	2SC2412K	AUDO
Q271	2SC2412K	VOLTA
Q502	2SA1037K	CONST
Q505	2SD774-4	V CEN
Q506	2SB734-3	V CEN
Q507	2SA1037K	CANAL
Q598	2SA1037K	VIDEO
Q601	2SB1357T114EF	STBY
Q602	2SD1548	REG O
Q603	2SB1357T114EF	STBY
Q604	2SA1037K	FAST
Q605	2SC2412K	STBY
Q606	2SC2412K	STBY
Q607	2SD2096	+ 12V
Q608	2SC2412K	STBY
Q609	2SD789-3	STBY S
Q801	2SC2412K	ABL A
Q804	2SD1941-06	H OUT
Q805	2SC2688-L	H DRIV
D001	MTZJ6.8C	PROTEC
D002	MTZJ6.8C	PROTEC
D003	1SS133	HUE CT
D005	MTZJ5.6B	PROT
D006	MTZJ33A	VC VOL
D007	MTZJ3.9B	PLOT F
D009	MTZJ5.6B	CLIPPIN
D010	MTZJ6.2B	PROT
D011	MTZJ6.2B	PROT
D012	1SS133	PROT
D013	MTZJ6.8C	PROT
D271	MTZJ13B	VOLTAG
D272	1SS133	DECOU
D501	1SS133	START
D504	GP08D	V PULS
D506	DA204K	CURREN
D508	1SS133	CANAL
D509	1SS133	V LIN (
D511	GP08D	PROT
D512	GP08D	PROT
D513	MTZJ4.7B	PROT
D514	1SS133	PROT (
D515	1SS133	PROT (
D601	D4SB60L-F	AC REC
D602	RGP10G	REF REC
D603	GP08D	SMPS D
D604	GP08D	SMPS D
D605	GP08D	SMPS D
D606	RGP10G	+ 12V R
D607	RGP10G	REF REC
D608	ERC25-06S	PLUSE C
D609	MTZJ33A	FAST O
D610	CTU-12S	+ 14V R
D611	ERD29-08J	+ 135V
D612	CTU-12S	+ 7V RE
D613	RGP15J	AF V RE
D614	RGP15J	AF V RE
D616	MTZJ6.2B	+ 12V R
D617	1SS133	PROT
D618	MTZJ5.6B	+ 12V R
D619	MTZJ33A	FAST ON
D620	DA204K	+ 12V R
D621	MTZJ33A	FAST ON
D622	1SS133	PROT
D623	1SS133	DECOUPL
D624	1SS133	DECOUPL
D630	MTZJ15A	+ 12V R
D801	RGP10G	+ 27V R
D802	RGP10G	+ 200V
D803	RGP02-17	G2 RECT
D804	GP08D	H CENTE
D805	GP08D	H CENTE
D806	ERC06-15S	H DAMPE
D807	ERC06-15S	H DAMPE
D808	ERD28-08S	PIN DAM
D808	ERD29-08J	PIN DAM

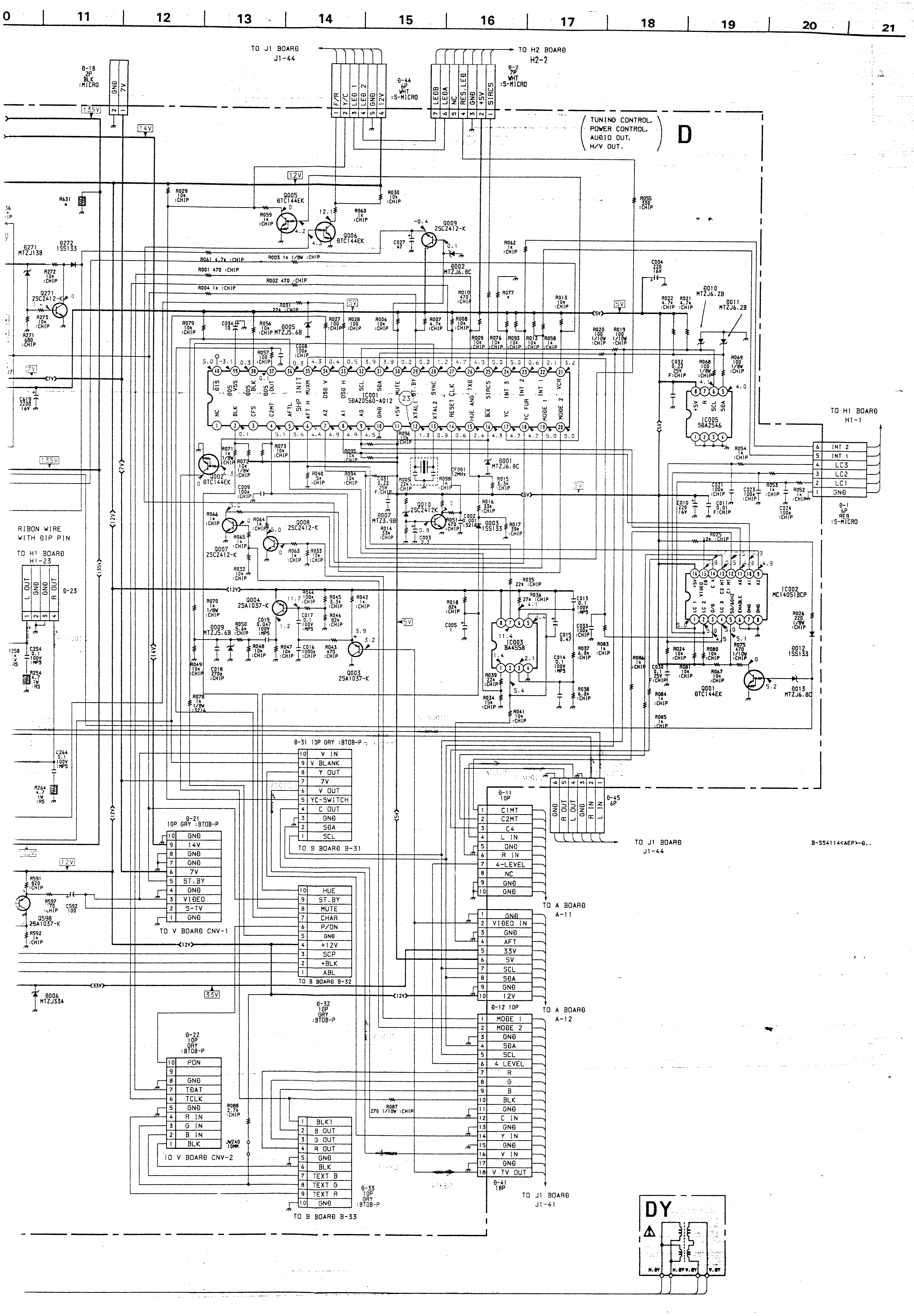
ING CTL
SCREEN DISPLAY
COMPARATOR
MEMORY
IO OUT (L)
IO OUT (R)
ECTION PROCESSOR
UT
MARY SMRS CTL
REG
2V REG

60Hz SW
SW
IC SEPARATOR
IC SEPARATOR
SW
NT/REAR SW
DE 2 SW
DE 1 SW
TE SW
ET
IO MUTE
O MUTE
TAGE DETECT
ISTANT CURRENT SOURCE
ENT
ENT
IAL +BLK
EO AMP
Y SW
OUT
Y SW
T ON/OFF
Y SW
Y SW
2V REG
Y SW
Y SW
AMP
UT
RIVER

TECT
TECT
CTL
T
VOLTAGE REGULATION
T RESET
PING SYNC LEVEL
T
T
T
T
TAGE DETECT
OUPLING MUTE AUDIO
RT
ULSE OUT
RENT (21/25 INCH ONLY)
IAL +BLK LEVEL
N (25/29 INCH ONLY)
T
T
T
T (29 INCH ONLY)
T (29 INCH ONLY)
RECT
RECT
S DRIVE 1
S DRIVE 2
S DRIVE 3
V RECT
RECT
SE CLIPPER
T ON/OFF
V RECT
5V RECT
RECT
RECT 1
RECT 2
V REG
T
V REF
T ON/OFF 2
V REF
T ON/OFF 3
T
OUPLING STBY
OUPLING STBY
V RECT
V RECT
OV RECT
RECT
ENTER 1
ENTER 2
AMPER 1
AMPER 2 (25/29 INCH ONLY)
DAMPER (21 INCH ONLY)
DAMPER (25/29 INCH ONLY)

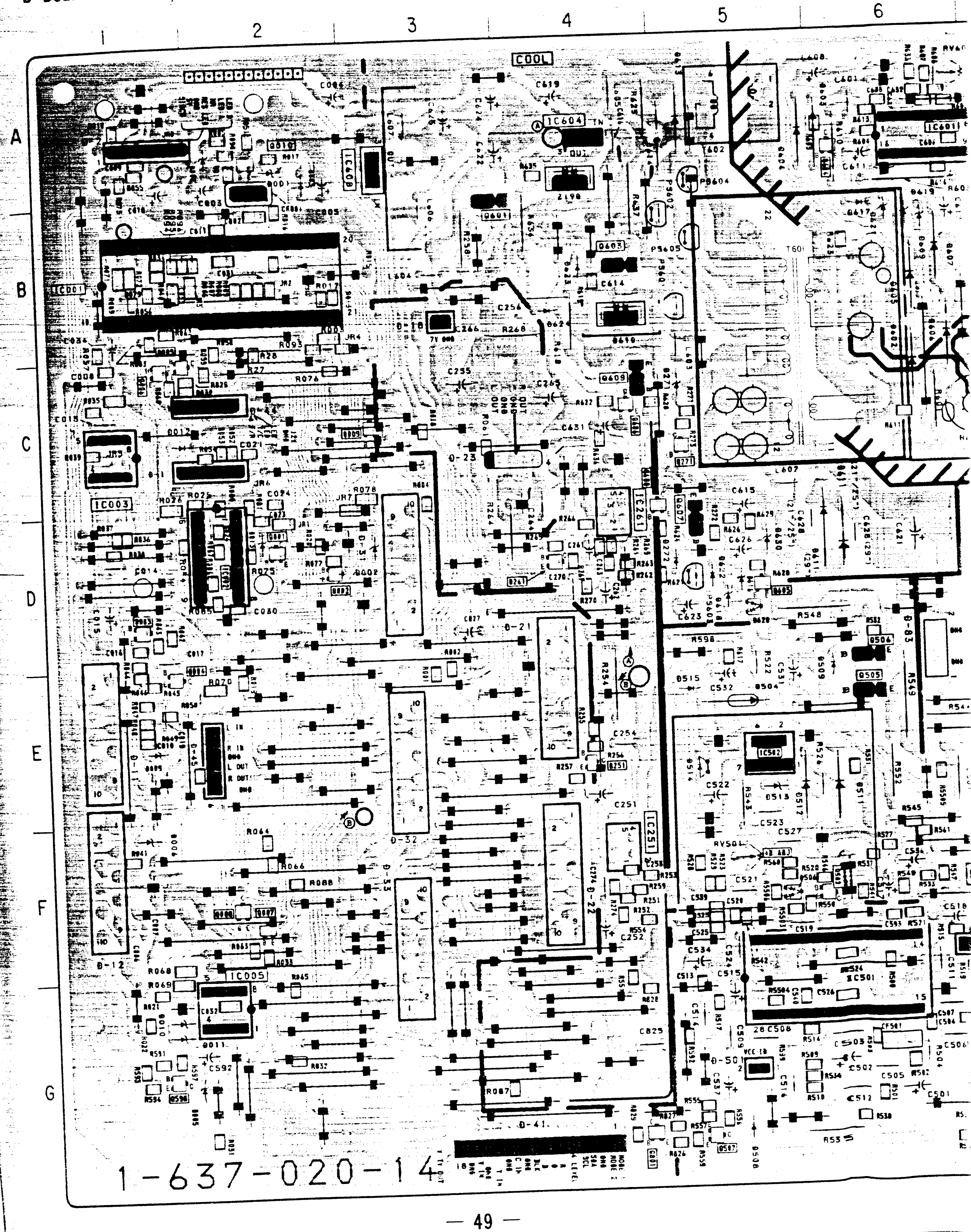

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
DGC
DGC CHK
8-66 2P WHT :MINI
8-65 3P WHT :MINI
AC IN
NC
NC
AC IN
8-62 3P WHT :VH
TO F BOARD F-62
LF1601
LF1602
LF1603 LFT
THP601
D601 D4SB60L-F
LIVE COLD
T601
IC608 MCA7812CT
IC601 TDA2260
IC604 TEA7605
Q604 2SA1037-K
Q602 2SD1548
Q603 2SB1357T114EF
Q601 2SB1357T114EF
Q609 2SD789
Q606 2SC2412-K
Q607 2SD2096
Q605 2SC2412-K
Q608 2SC2412-K
T602
P5601
P5602 2A
P5604 2A
D610 CTU-12S
D612 CTU-12S
12V
135V
IC501 TEA2028B
IC502 TDA8170
CF501 503KHz
H PHASE
+B ADJ
Q502 2SA1037-K
Q505 2SD774
Q506 2SB734
GND
P OUT
27V
V ANG
V PAR
V SAW
V CENT
V SIZE
H SIZE
GND
GND
H PLS
ABL 1
ABL 2
12V
H CENT
GND
GND
8-51 18P BLK :HINGE-P
TO J1 BOARD J1-51
Q507 2SA1037-K
IC251 TDA2050 L
IC261 TDA2050 R
Q251 2SC2412-K
Q261 2SC2412-K
27V
GND
29 INCH ONLY
TO VM BOARD VM-88
8-88
H2
NC
H1
RIBON WIRE WITH DIP PIN
TO C BOARD C-81
8-81 3P :MICRO
T802 FBT
D801 RGP10G
Q801 2SC2412-K
D802 RGP10G
VIDEO
H CENT
Q805 GP08D
Q804 GP08D
200V
KG KB G2
V901
PICTURE TUBE
H
CV KR G1 G4 HV
TO C BOARD
TO C BOARD C-71
29 INCH A68JYL61X
25 INCH A59JWC61X
21 INCH A51JXH61X
T801 H.D.T
Q805 2SC2688-L
Q804 2SD1941-06
D803 RGP02-17
D806 ERC06-15S
8-83 2P WHT :MINI
GND
GND
TO COATING EARTH ASSY
8-82 3P WHT :MINI
G2
200V
GND
TO C BOARD C-82
8-84 6P WHT :MINI
H+
H+
H-
H-
V+


9
10
11
12
13
14
15
16
17
18
19
20
TO J1 BOARD J1-44
TO H2 BOARD H2-2
D
TUNING CONTROL,
POWER CONTROL,
AUDIO OUT,
H/V OUT.
Ɵ-18 2P BLK :MICRO
Ɵ-44 6P WHT :S-MICRO
Ɵ-2 7P WHT :S-MICRO
FR
YC
LD 1
LD 2
GND
1V
LDB
LDA
N
RS.LED
GD
+V
SIRCS
135V
14V
12V
7V
5V
33V
IC001 SDA20560-A012
IC005 SDA2546
IC002 MC14051BCP
IC003 BA4558
IC251 TDA2050 L
IC261 TDA2050 R
Q005 DTC144EK
Q006 DTC144EK
Q009 2SC2412-K
Q002 DTC144EK
Q007 2SC2412-K
Q008 2SC2412-K
Q010 2SC2412K
Q004 2SA1037-K
Q003 2SA1037-K
Q001 DTC144EK
Q598 2SA1037-K
Q271 2SC2412-K
Q605 2SC2412-K
Q606 2SC2412-K
D002 MTZJ6.8C
D005 MTZJ5.6B
D007 MTZ3.9B
D001 MTZJ6.8C
D003 1SS133
D009 MTZJ5.6B
D010 MTZJ6.2B
D011 MTZJ6.2B
D012 1SS133
D013 MTZJ6.8C
D006 MTZJ33A
D271 MTZJ13B
D272 1SS133
D630 MTZJ15A
D618 MTZJ5.6B
D616 MTZJ6.2B
D620 DA204K
CF001 12MHz
RIBON WIRE WITH DIP PIN
TO H1 BOARD H1-23
Ɵ-23
L OUT
GND
GND
R OUT
TO H1
INT 2
INT 1
LC3
LC2
LC1
GND
Ɵ-1 6P RED :S-MICRO
Ɵ-31 10P GRY :BTOB-P
V IN
V BLANK
Y OUT
7V
V OUT
YC-SWITCH
C OUT
GND
SDA
SCL
TO B BOARD B-31
Ɵ-21 10P GRY :BTOB-P
GND
14V
GND
GND
7V
ST.BY
GND
VIDEO
S-TV
GND
TO V BOARD CNV-1
HUE
ST.BY
MUTE
CHAR
P/ON
GND
+12V
SCP
+BLK
ABL
TO B BOARD B-32
Ɵ-32 10P GRY :BTOB-P
Ɵ-22 10P GRY :BTOB-P
PON
GND
TDAT
TCLK
GND
R IN
G IN
B IN
BLK
TO V BOARD CNV-2
BLK1
B OUT
G OUT
R OUT
GND
BLK
TEXT B
TEXT G
TEXT R
GND
Ɵ-33 10P GRY :BTOB-P
TO B BOARD B-33
VIDEO
Ɵ-11 10P
C1MT
C2MT
C4
L IN
GND
R IN
4-LEVEL
NC
GND
GND
TO A BOARD A-11
GND
VIDEO IN
GND
AFT
33V
5V
SCL
SDA
GND
12V
TO A BOARD A-12
Ɵ-12 10P
MODE 1
MODE 2
GND
SDA
SCL
4 LEVEL
R
G
B
BLK
GND
C IN
GND
Y IN
GND
V IN
GND
V TV OUT
Ɵ-41 18P
TO J1 BOARD J1-41
Ɵ-45 6P
GND
R OUT
L OUT
GND
R IN
L IN
TO J1 BOARD J1-44
B-SS4114<AEP
JW240 10MM
Ɵ-84 6P WHT :MINI
H+
H+
H-
V-
V+
DY
H.DY
V.DY
⑲
⑳
㉑
㉒
㉓

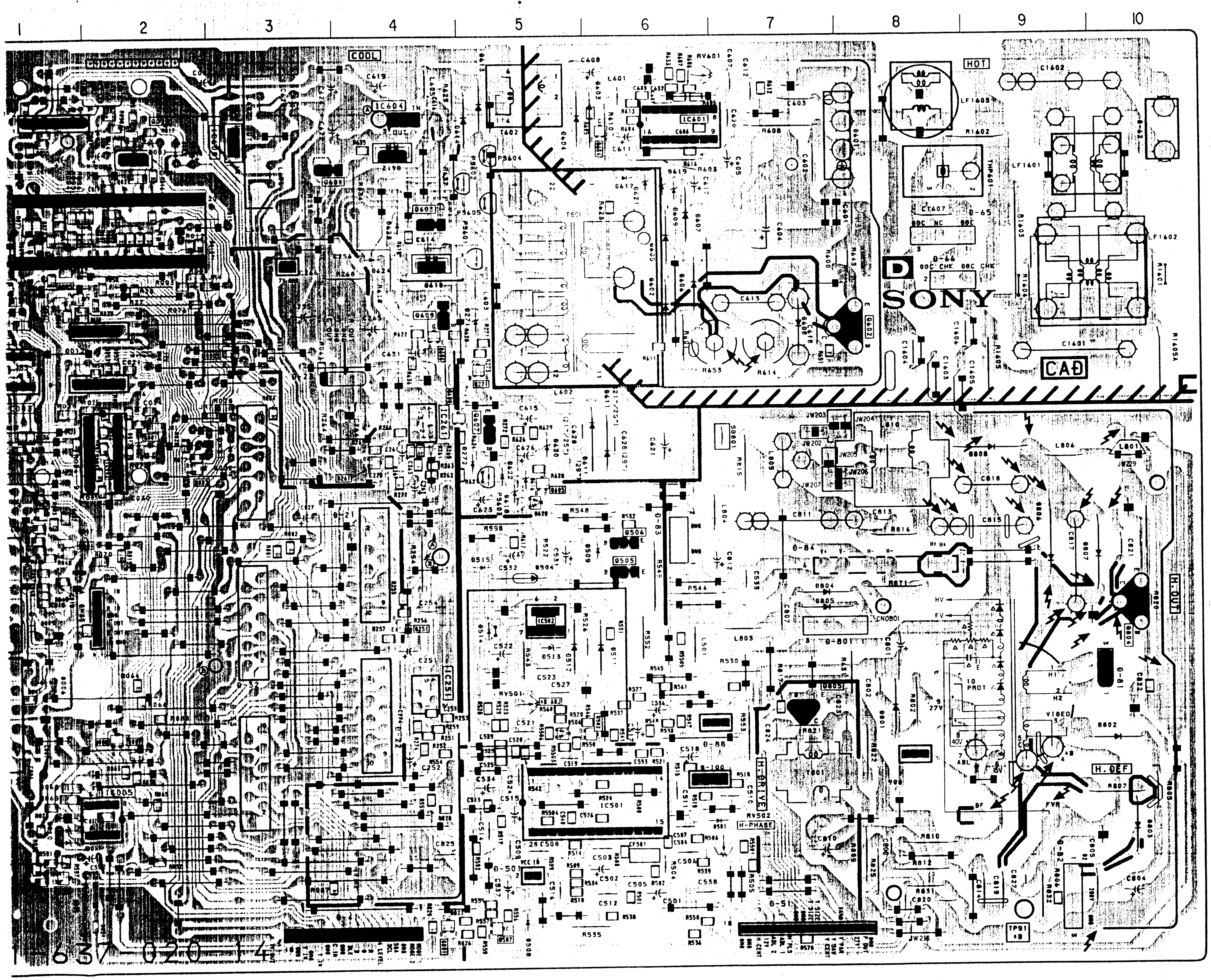

10
11
12
13
14
15
16
17
18
19
20
21
TO J1 BOARD J1-44
TO H2 BOARD H2-2
θ-18 2P BLK :MICRO
θ-44 6P WHT :S-MICRO
θ-2 7P WHT :S-MICRO
F/R
Y/C
LED 1
LED 2
GND
12V
LEDB
LEDA
NC
RES.LED
GND
+5V
SIRCS
TUNING CONTROL, POWER CONTROL, AUDIO OUT, H/V OUT.
D
IC001 SDA20560-A012
IC005 SDA2546
IC003 BA4558
IC002 MC14051BCP
Q001 DTC144EK
Q002 DTC144EK
Q003 2SA1037-K
Q004 2SA1037-K
Q005 DTC144EK
Q006 DTC144EK
Q007 2SC2412-K
Q008 2SC2412-K
Q009 2SC2412-K
Q010 2SC2412K
Q271 2SC2412-K
Q598 2SA1037-K
CF001 12MHz
TO H1 BOARD H1-1
INT 2
INT 1
LC3
LC2
LC1
GND
θ-1 6P RED :S-MICRO
RIBON WIRE WITH θIP PIN
TO H1 BOARD H1-23
L OUT
GND
GND
R OUT
θ-23
θ-31 10P GRY :BTOB-P
V IN
V BLANK
Y OUT
7V
V OUT
YC-SWITCH
C OUT
GND
SDA
SCL
TO B BOARD B-31
θ-21 10P GRY :BTOB-P
GND
14V
GND
GND
7V
ST.BY
GND
VIDEO
S-TV
GND
TO V BOARD CNV-1
HUE
ST.BY
MUTE
CHAR
P/ON
GND
+12V
SCP
+BLK
ABL
TO B BOARD B-32
θ-32 10P GRY :BTOB-P
θ-22 10P GRY :BTOB-P
PON
GND
TDAT
TCLK
GND
R IN
G IN
B IN
BLK
TO V BOARD CNV-2
BLK1
B OUT
G OUT
R OUT
GND
BLK
TEXT B
TEXT G
TEXT R
GND
θ-33 10P GRY :BTOB-P
TO B BOARD B-33
θ-11 10P
C1MT
C2MT
C4
L IN
GND
R IN
4-LEVEL
NC
GND
GND
TO A BOARD A-11
GND
VIDEO IN
GND
AFT
33V
5V
SCL
SDA
GND
12V
TO A BOARD A-12
θ-12 10P
MODE 1
MODE 2
GND
SDA
SCL
4 LEVEL
R
G
B
BLK
GND
C IN
GND
Y IN
GND
V IN
GND
V TV OUT
θ-41 18P
TO J1 BOARD J1-41
θ-45 6P
GND
R OUT
L OUT
GND
R IN
L IN
TO J1 BOARD J1-44
B-SS4114<AEP>-θ..
DY
H.DY
H.DY
V.DY
V.DY
D006 MTZJ33A
135V
14V
12V
7V
5V
33V

D [TUNING CONTROL, POWER CONTROL, AUDIO OUT, H/V OUT]

—D Board—


1
2
3
4
5
6
A
B
C
D
E
F
G
COOL
IC001
IC003
IC005
IC251
IC261
IC501
IC502
IC601
IC604
IC608
T601
T602
RV501
D-41
1-637-020-14

UNING CONTROL, POWER CONTROL,
UDIO OUT, H/V OUT



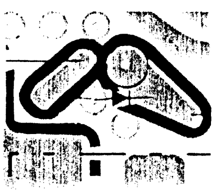
IC	
IC001	B - 2
IC002	C - 2
IC003	C - 1
IC005	G - 2
IC251	F - 4
IC261	D - 4
IC501	G - 6
IC502	E - 5
IC601	A - 6
IC604	A - 4
IC608	A - 3

TRANSISTOR	
Q001	C - 2
Q002	C - 2
Q003	D - 1
Q004	D - 4
Q005	C - 1
Q006	C - 1
Q007	F - 2
Q008	F - 2
Q009	C - 3
Q010	A - 2
Q251	E - 4
Q271	C - 5
Q502	F - 5
Q505	E - 6
Q506	D - 6
Q507	G - 4
Q598	G - 1
Q601	B - 3
Q602	C - 8
Q603	B - 4
Q604	A - 6
Q605	D - 5
Q606	C - 4
Q607	D - 5
Q608	C - 4
Q609	C - 4
Q801	G - 4
Q804	E - 10
Q805	F - 7

DIODE	
D001	A - 2
D002	D - 3
D003	A - 2
D005	G - 1
D006	F - 1
D007	A - 2
D009	E - 1
D010	G - 1
D011	G - 1
D012	C - 1
D013	D - 2
D271	C - 5
D272	D - 5
D501	G - 7
D504	E - 5
D506	F - 5
D508	G - 5
D509	F - 5
D511	E - 6
D512	E - 5
D513	E - 5
D514	E - 5
D515	E - 5
D601	A - 8
D602	C - 6
D603	A - 5
D604	A - 4
D605	B - 6
D606	B - 6
D607	B - 6
D608	C - 7
D609	B - 6
D610	B - 4
D611	D - 6
D612	A - 4
D613	A - 5
D614	A - 5
D616	D - 5
D617	B - 6
D618	D - 5
D619	B - 6
D620	D - 5
D621	B - 6
D622	D - 5
D623	B - 4
D624	B - 4
D630	D - 5
D801	F - 8
D802	F - 10
D803	G - 10
D804	E - 7
D805	E - 7
D806	E - 9
D807	E - 10
D808	D - 9

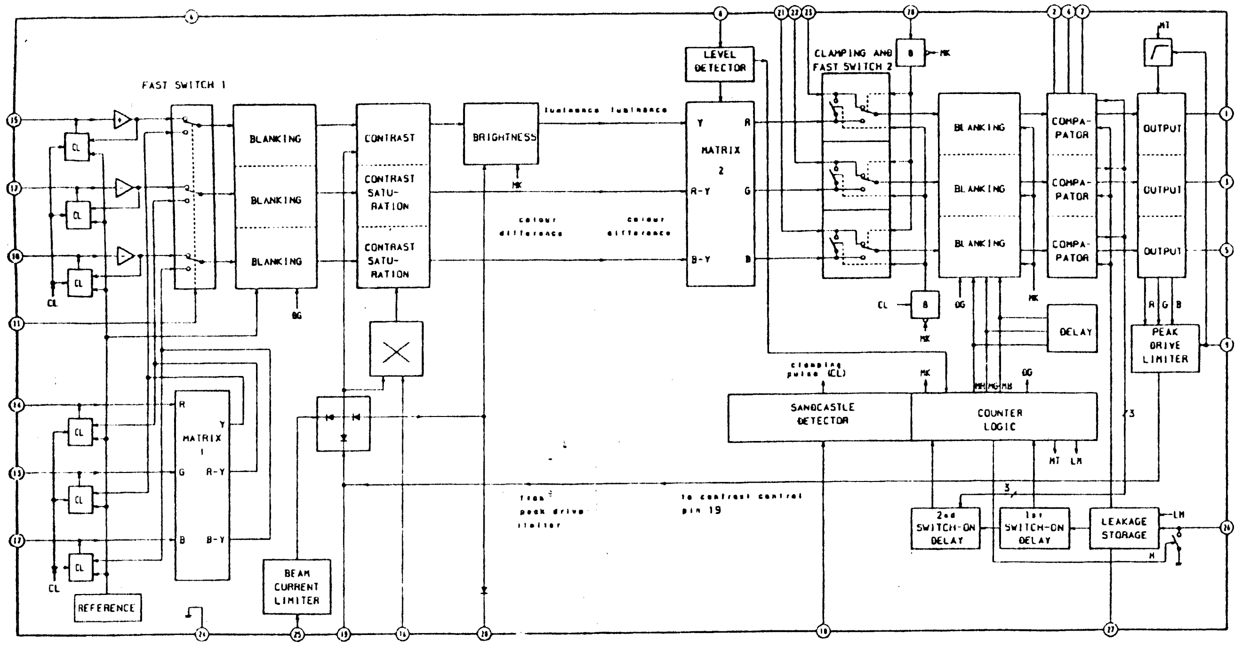
VARIABLE RESISTOR	
RV501	F - 5
RV502	G - 7
RV601	A - 6

TP	
TP91	G - 9

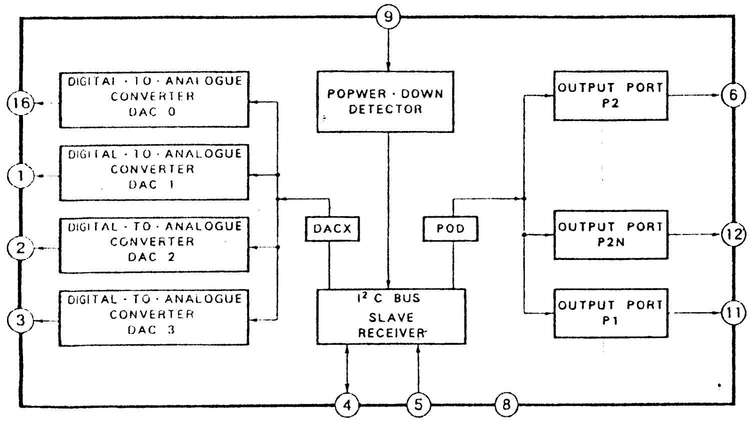


NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

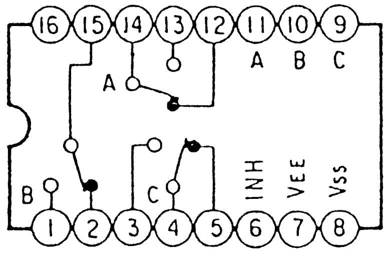
B BOARD IC301 TDA4580-V7


FAST SWITCH 1
CL
BLANKING
BLANKING
BLANKING
BG
CONTRAST
CONTRAST SATU-RATION
CONTRAST SATU-RATION
BRIGHTNESS
MK
luminance luminance
colour difference
colour difference
MATRIX 1
R
G
B
Y
R-Y
B-Y
REFERENCE
BEAM CURRENT LIMITER
from peak drive limiter
to contrast control pin 19
LEVEL DETECTOR
MATRIX 2
CLAMPING AND FAST SWITCH 2
COMPA-PATOR
OUTPUT
PEAK DRIVE LIMITER
DELAY
SANDCASTLE DETECTOR
COUNTER LOGIC
clamping pulse (CL)
MT
LM
2nd SWITCH-ON DELAY
1st SWITCH-ON DELAY
LEAKAGE STORAGE

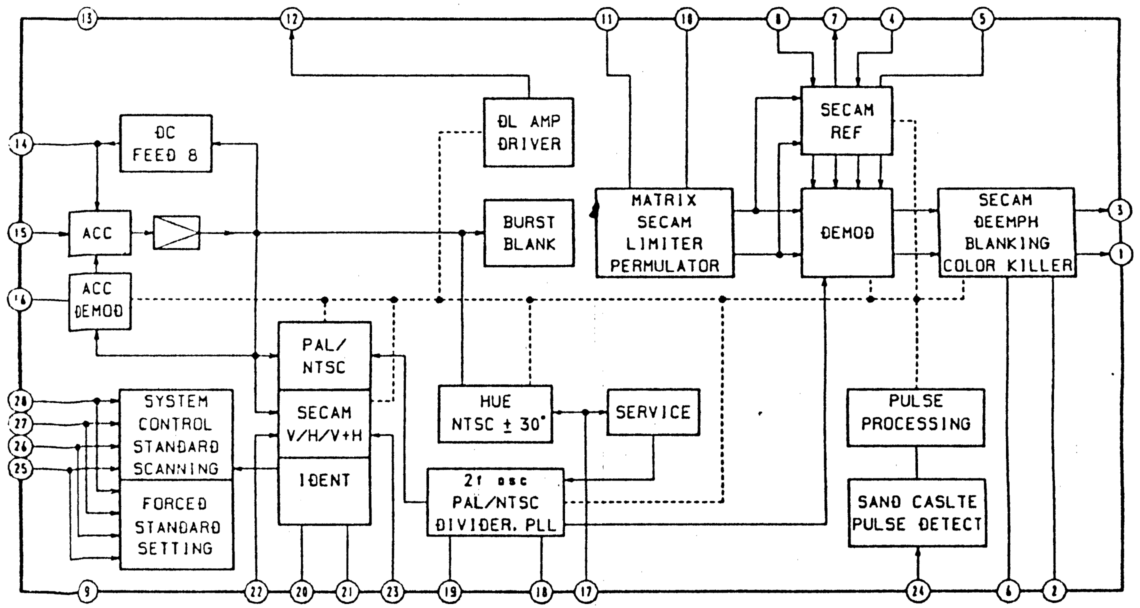
B BOARD IC302 TDA8442-N3


DIGITAL - TO - ANALOGUE CONVERTER DAC 0
DIGITAL - TO - ANALOGUE CONVERTER DAC 1
DIGITAL - TO - ANALOGUE CONVERTER DAC 2
DIGITAL - TO - ANALOGUE CONVERTER DAC 3
POPWER - DOWN DETECTOR
DACX
POD
I² C BUS SLAVE RECEIVER
OUTPUT PORT P2
OUTPUT PORT P2N
OUTPUT PORT P1

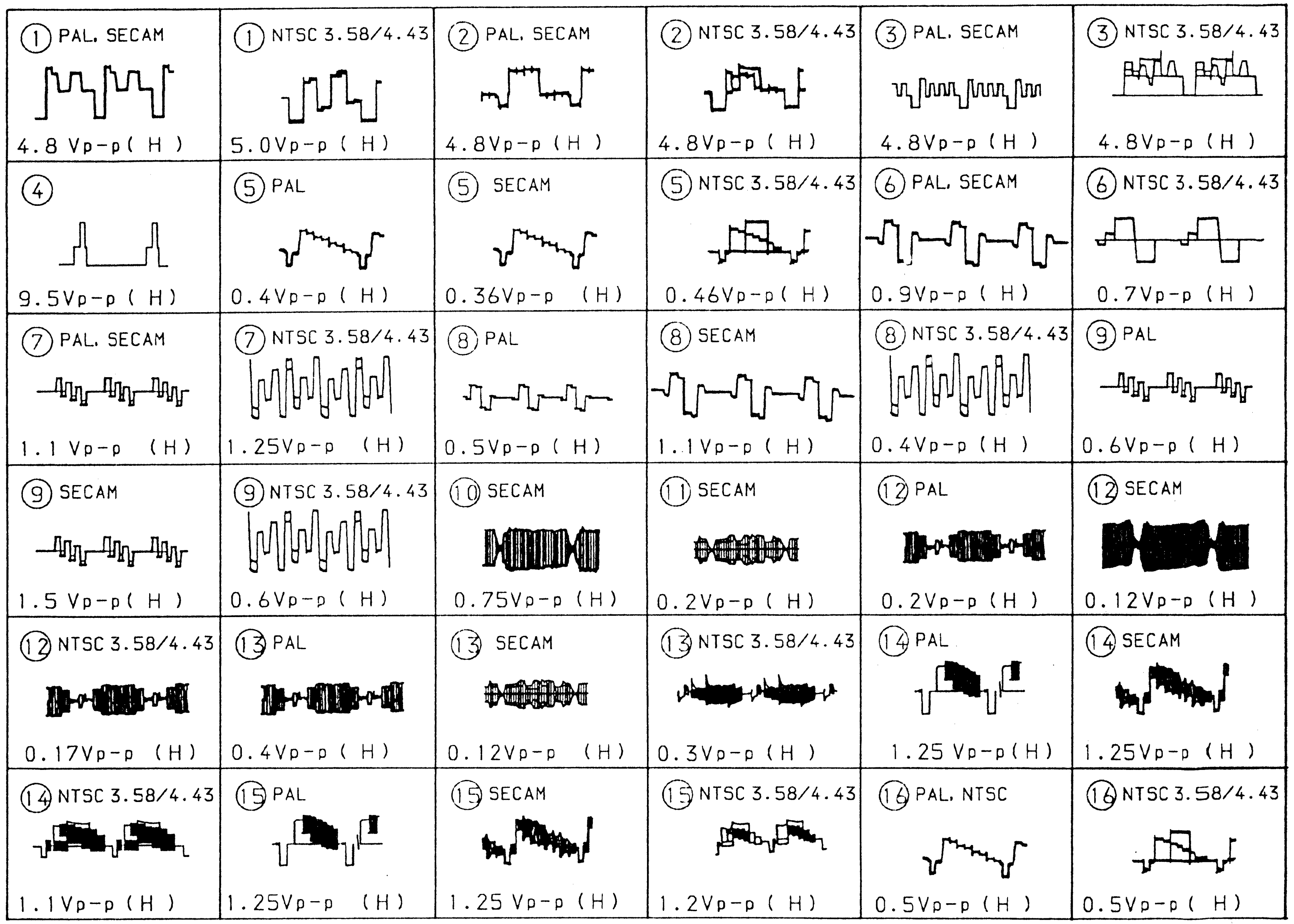
B BOARD IC303 MC14053BCP


A B C
A
B
C
INH
VEE
Vss

B BOARD IC331 TDA4650


DC FEED B
ACC
ACC DEMOD
DL AMP DRIVER
BURST BLANK
MATRIX SECAM LIMITER PERMULATOR
SECAM REF
DEMOD
SECAM DEEMPH BLANKING COLOR KILLER
PAL/NTSC
SECAM V/H/V+H
IDENT
SYSTEM CONTROL STANDARD SCANNING
FORCED STANDARD SETTING
HUE NTSC ± 30°
SERVICE
2f osc PAL/NTSC DIVIDER, PLL
PULSE PROCESSING
SAND CASLTE PULSE DETECT

• WAVEFORMS B BOARD



As to the voltage value shown by the mark ※ on the Schematic Diagram, see the another list.

		PAL	SECAM	NTSC3.58	NTSC4.43
IC301	⑧	0.1	0.1	5.8	0.1
	㉖	6.7	6.8	5.1	6.5
IC331	⑲	3.1	3.6	3.1	2.8
	㉑	3.0	3.5	2.9	2.7
	㉒	5.6	5.6	7.1	7.2
	㉓	7.5	7.0	5.6	5.6
	㉕	0.1	0.1	0.1	5.8
	㉖	0.1	0.1	5.8	0.1
	㉗	0.1	5.8	0.1	0.1
	㉘	5.9	0.1	0.1	0.1
Q331	(B)	0.1	0.1	5.8	0.1
	(C)	0.3	0.4	0	0.8
Q333	(B)	4.4	4.4	4.4	4.4
Q334	(B)	4.9	0.1	4.8	4.8
Q335	(B)	0.1	4.8	0.1	0.1

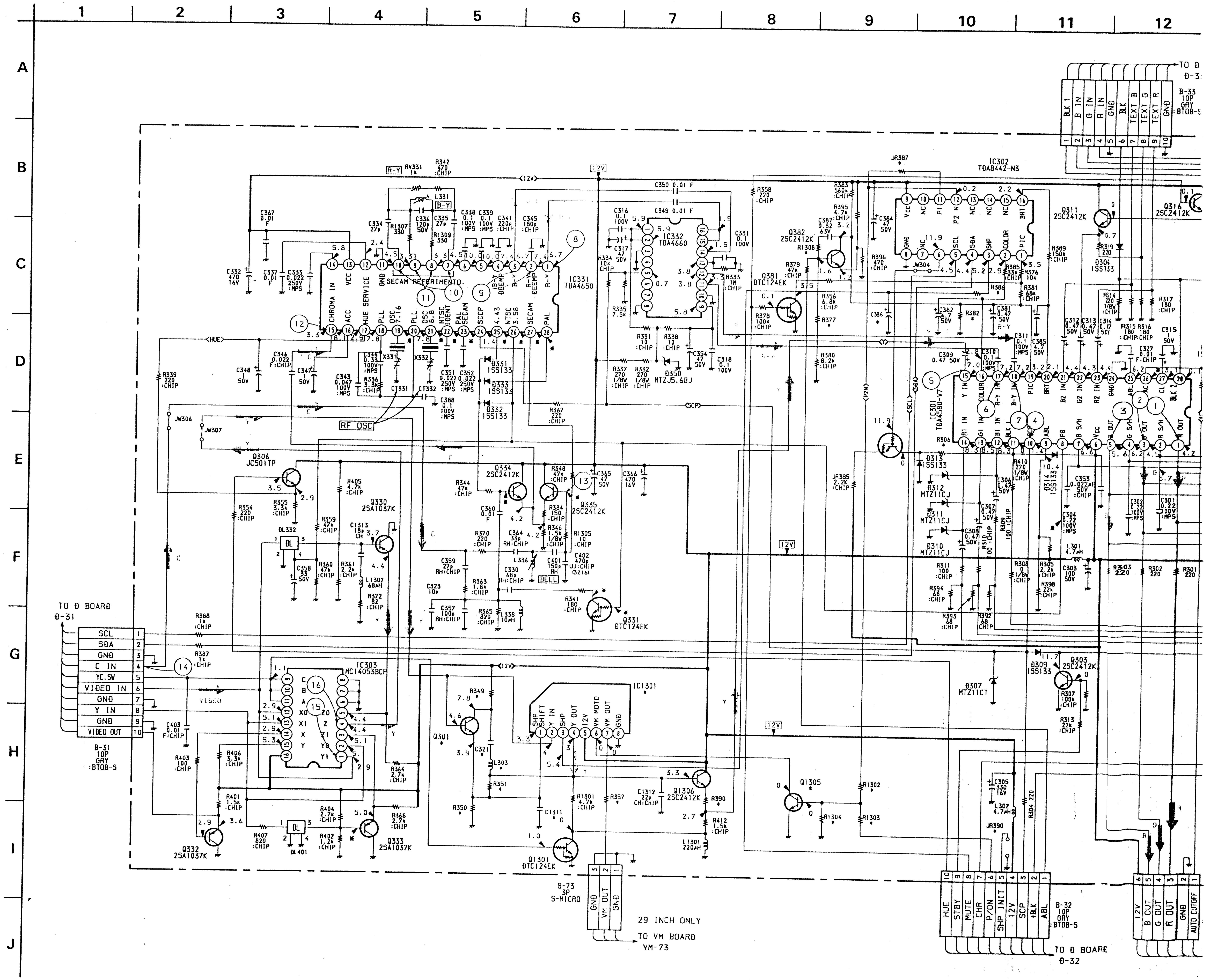
• B BOARD

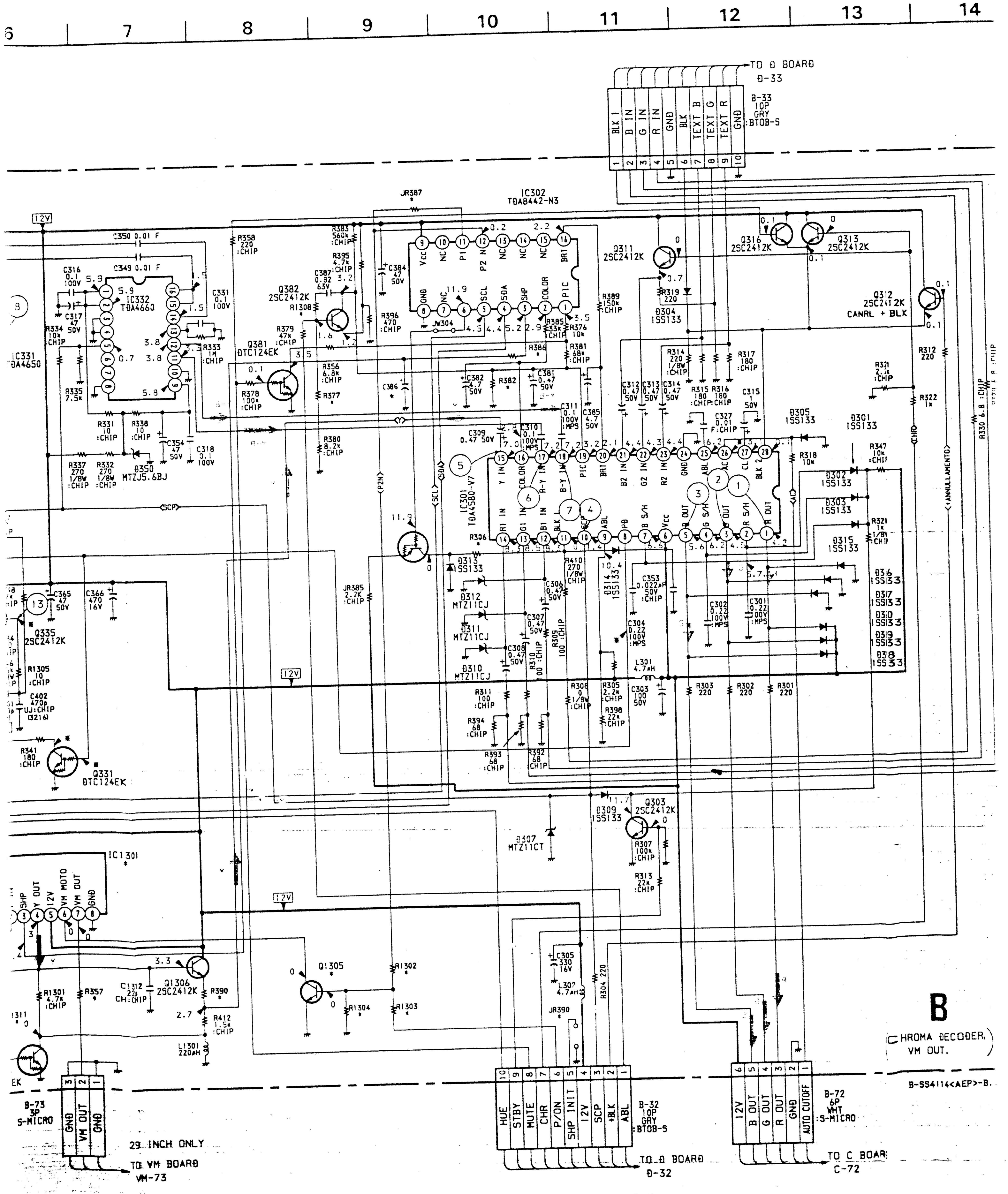
IC301	TDA4580-V7	VIDEO PROCESSOR
IC302	TDA8442-N3	D/A CONVERTER I 2 C BUS
IC303	MC14053BCP	Y/C COMP SW
IC331	TDA4650	COLOR PROCESSOR
IC332	TDA4660-V2	1H-DEALY
IC1301	HIC2110	SHARPNESS CONTROL (29 INCH ONLY)
Q301	2SC2412K	Y AMP (21/25 INCH ONLY)
Q303	2SC2412K	STBY SW
Q305	DTA144EK	ANTI PRIORITY SCART
Q306	JC501	VIDEO BUF (HUE)
Q311	2SC2412K	ON SCREEN DISPLAY SW
Q312	2SC2412K	CANRL + BLK
Q313	2SC2412K	ON SCREEN DISPLAY
Q316	2SC2412K	FAS PICTURE MUTE SW
Q330	2SA1037K	VIDEO AMP
Q331	DTC124EK	NTSC SW
Q332	2SA1037K	VIDEO BUFF
Q333	2SA1037K	Y AMP
Q334	2SC2412K	PAL/NTSC SW
Q335	2SC2412K	SECAM SW
Q381	DTC124EK	MUTE
Q382	2SC2412K	ABL
Q1301	DTC124EK	Y BUFF
Q1305	2SC2412K	Y OUT (29 INCH ONLY)
Q1306	2SC2412K	Y OUT
D301	1SS133	ACO AT STBY
D302	1SS133	ACO AT STBY
D303	1SS133	ACO AT STBY
D304	1SS133	DECOUPLING BLK
D305	1SS133	PROT
D307	MTZ11C	PROT
D309	1SS133	PROT
D310	MTZ11C	PROT
D311	MTZ11C	PROT
D312	MTZ11C	PROT
D313	1SS133	PROT
D314	1SS133	PROT
D315	1SS133	PROT
D316	1SS133	PROT
D317	1SS133	PROT
D318	1SS133	PROT
D319	1SS133	PROT
D320	1SS133	PROT
D331	1SS133	SECAM SW
D332	1SS133	SECAM SW
D333	1SS133	SECAM SW
D350	MTZJ5.6C	PROT

B BOARD ＊ MARK

	21″	25″	29″
B-73	–	–	3P
C321	100P	100P	–
C386	–	–	4.7 50V
C1311	56P	56P	33P
IC1301	–	–	HIC2110
JR387	–	–	0 : CHIP
JR390	0 : CHIP	0 : CHIP	–
L303	5.6 μH	5.6 μH	–
Q301	2SC2412K	2SC2412K	–
Q1305	–	–	2SC2412K
R306	–	–	0 : CHIP
R349	680	680	–
R350	680	680	–
R351	220	680	–
R357	–	–	220
R377	330	330	1.8K
R382	270K	220K	220K
R386	–	–	3.3K
R390	220	220	100
R1302	–	–	47K
R1303	–	–	47K
R1304	–	–	100K
R1308	0	0	4.7K

– : NOT MOUNTED

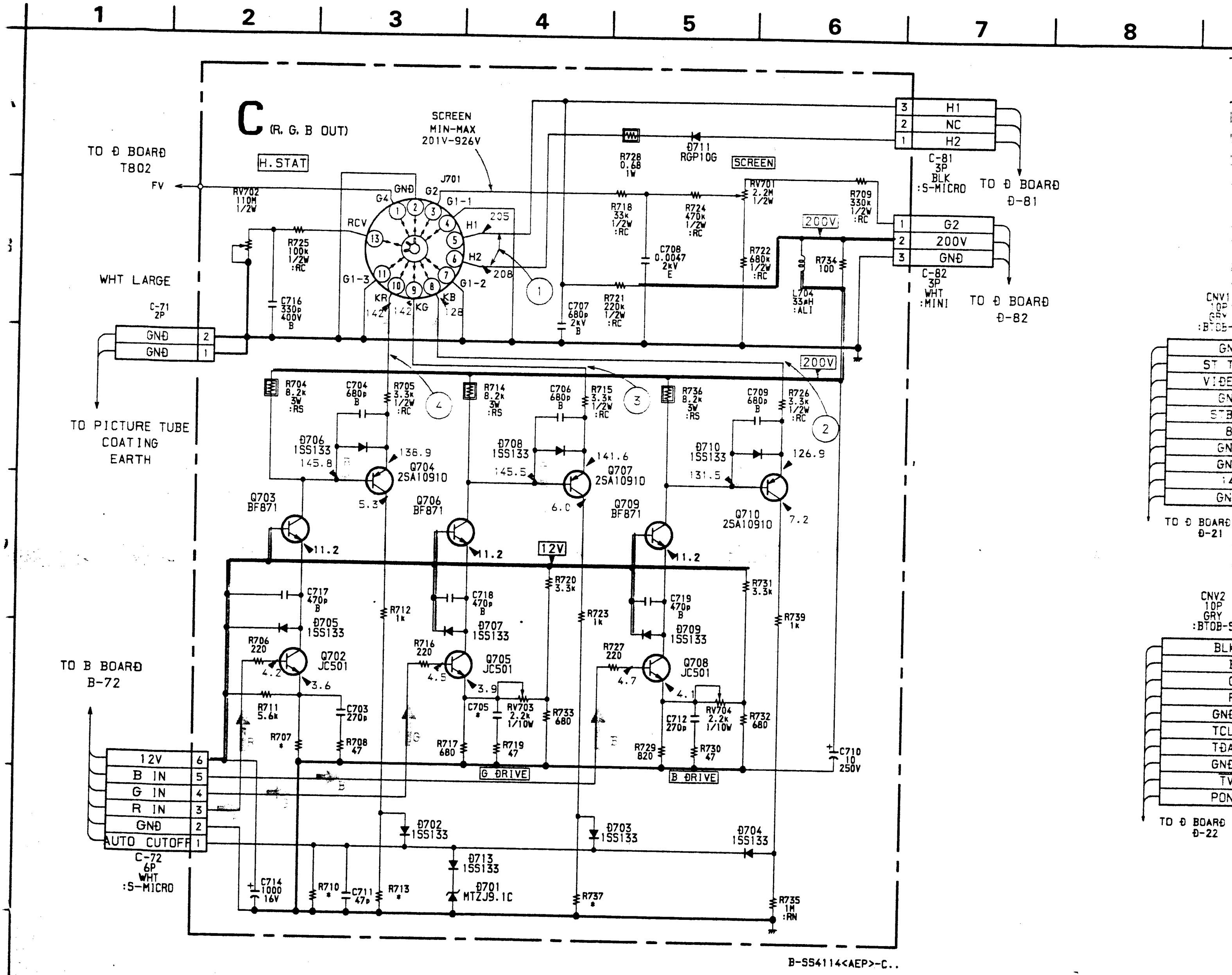

1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
IC331
TDA4650
IC332
TDA4660
IC302
TDA8442-N3
IC301
TDA4580-V7
IC303
MC14053BCP
IC1301
CHROMA IN
VCC
GND
SECAM REFERIMENT.
HUE SERVICE
PLL
OSC 7.16
PLL
OSC 8.8
NTSC IDENT
PAL SECAM
SCCP
4.43
NTSC 3.58
SECAM
PAL
B-Y
R-Y
RF OSC
BELL
HUE
SCP
12V
Q306
JC501TP
Q330
2SA1037K
Q334
2SC2412K
Q335
2SC2412K
Q331
DTC124EK
Q381
DTC124EK
Q382
2SC2412K
Q311
2SC2412K
Q316
2SC2412K
Q303
2SC2412K
Q301
Q332
2SA1037K
Q333
2SA1037K
Q1301
DTC124EK
Q1305
Q1306
2SC2412K
DL332
DL401
D307
MTZ11CT
D309
1SS133
D350
MTZJ5.6BJ
TO B BOARD
B-31
SCL
SDA
GND
C IN
YC.SW
VIDEO IN
GND
Y IN
GND
VIDEO OUT
B-31
10P
GRY
:BTOB-S
SHP SHIFT
Y IN
SHP
Y OUT
12V
VM MOTO
VM OUT
GND
B-73
3P
S-MICRO
GND
VM OUT
GND
29 INCH ONLY
TO VM BOARD
VM-73
HUE
STBY
MUTE
CHR
P/ON
SHP INIT
12V
SCP
+BLK
ABL
B-32
10P
GRY
:BTOB-S
TO B BOARD
B-32
12V
B OUT
G OUT
R OUT
GND
AUTO CUTOFF
BLK I
B IN
G IN
R IN
GND
BLK
TEXT B
TEXT G
TEXT R
GND
TO B
B-33
10P
GRY
:BTOB-S


6
7
8
9
10
11
12
13
14
TO D BOARD
D-33
B-33
10P
GRY
:BTOB-S
BLK 1
B IN
G IN
R IN
GND
BLK
TEXT B
TEXT G
TEXT R
GND
JR387
IC302
TDA8442-N3
12V
C350 0.01 F
C349 0.01 F
C316 0.1 100V
C317 47 50V
IC332
TDA4660
C331 0.1 100V
R334 10k CHIP
IC331
TDA4650
R335 7.5k
R333 1M :CHIP
R358 220 :CHIP
R383 560k :CHIP
R395 4.7k :CHIP
C387 0.82 63V
C384 47 50V
Q382
2SC2412K
R1308
Q381
DTC124EK
R379 47k :CHIP
R378 100k :CHIP
R356 6.8k :CHIP
R377
R396 470 :CHIP
JW304
VCC
NC
P1
P2 N
BRT
GND
SCL
SDA
SHP
COLOR
PIC
R385 33k :CHIP
R376 10k
R389 150k :CHIP
R381 68k :CHIP
R386
C386
C382 4.7 50V
R382
C381 0.47 50V
C311 0.1 100V :MPS
C385 4.7 50V
Q311
2SC2412K
R319 220
D304
1SS133
Q316
2SC2412K
Q313
2SC2412K
Q312
2SC2412K
CANRL + BLK
R312 220
R314 220 1/8W :CHIP
R317 180 :CHIP
C312 0.47 50V
C313 0.47 50V
C314 0.47 50V
R315 180 :CHIP
R316 180 :CHIP
C315 1 50V
C327 0.01 F:CHIP
D305
1SS133
D301
1SS133
R321 2.2k :CHIP
R322 1k
R330 6.8 :CHIP
CHR
ANNULLAMENTO
R331 10 :CHIP
R338 10 :CHIP
C354 47 50V
C318 0.1 100V
R337 270 1/8W :CHIP
R332 270 1/8W :CHIP
D350
MTZJ5.6BJ
R380 8.2k :CHIP
C309 0.47 50V
C310 0.1 100V :MPS
IC301
TDA4580-V7
Y IN
COLOR
R-Y IN
B-Y IN
PIC
BRT
B2 IN
G2 IN
R2 IN
GND
ABL
XC
CL
BLK 2
R1 IN
G1 IN
B1 IN
BLK 1
SCP
VB
PD
B S/H
Vcc
B OUT
G S/H
G OUT
R S/H
R OUT
R318 10k
R347 10k :CHIP
D302
1SS133
D303
1SS133
R321 1k 1/8W :CHIP
D315
1SS133
SCP
P2N
SDA
SCL
R306
D313
1SS133
R410 270 1/8W :CHIP
D314
1SS133
C353 0.022 50V :CHIP
JR385 2.2k :CHIP
C306 0.47 50V
D312
MTZ11CJ
C307 0.47 50V
D311
MTZ11CJ
C308 0.47 50V
D310
MTZ11CJ
R310 100 :CHIP
R309 100 :CHIP
C304 0.22 100V :MPS
C302 0.22 100V :MPS
C301 0.22 100V :MPS
D316
1SS133
D317
1SS133
D310
1SS133
D319
1SS133
D318
1SS133
L301 4.7µH
R311 100 :CHIP
R308 0 1/8W :CHIP
R305 2.2k :CHIP
C303 100 50V
R303 220
R302 220
R301 220
R398 22k :CHIP
R394 68 :CHIP
R393 68 :CHIP
R392 68 :CHIP
C365 47 50V
C366 470 16V
Q335
2SC2412K
R1305 10 :CHIP
C402 470p UJ:CHIP (3216)
R341 180 :CHIP
Q331
DTC124EK
D309
1SS133
Q303
2SC2412K
R307 100k :CHIP
D307
MTZ11CT
R313 22k :CHIP
IC1301
SHP
Y OUT
12V
VM MOTO
VM OUT
GND
Q1305
R1302
R1303
R1304
Q1306
2SC2412K
R1301 4.7k :CHIP
R357
C1312 22p CH:CHIP
R390
R412 1.5k :CHIP
L1301 220µH
C305 330 16V
L302 4.7µH
R304 220
JR390
B-73
3P
S-MICRO
GND
VM OUT
GND
29 INCH ONLY
TO VM BOARD
VM-73
HUE
STBY
MUTE
CHR
P/ON
SHP INIT
12V
SCP
+BLK
ABL
B-32
10P
GRY
:BTOB-S
TO D BOARD
D-32
12V
B OUT
G OUT
R OUT
GND
AUTO CUTOFF
B-72
6P
WHT
:S-MICRO
TO C BOARD
C-72

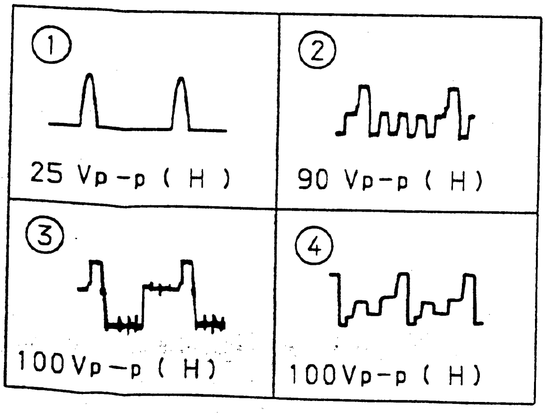
B

CHROMA DECODER, VM OUT.

B-SS4114<AEP>-B.


1
2
3
4
5
6
7
8
C (R, G, B OUT)
H.STAT
SCREEN MIN-MAX 201V-926V
TO Ð BOARD T802
FV
RV702 110M 1/2W
J701
GND
G2
G4
G1-1
RCV
H1
H2
205
208
G1-3
G1-2
KR
KG
KB
142
142
128
R725 100k 1/2W :RC
C716 330p 400V B
WHT LARGE
C-71 2P
GND
GND
TO PICTURE TUBE COATING EARTH
R728 0.68 1W
D711 RGP10G
SCREEN
RV701 2.2M 1/2W
R718 33k 1/2W :RC
R724 470k 1/2W :RC
R709 330k 1/2W :RC
C708 0.0047 2kV E
R722 680k 1/2W :RC
R734 100
L704 33µH :ALI
200V
C707 680p 2kV B
R721 220k 1/2W :RC
H1
NC
H2
C-81 3P BLK :S-MICRO
TO Ð BOARD Ð-81
G2
200V
GND
C-82 3P WHT :MINI
TO Ð BOARD Ð-82
R704 8.2k 3W :RS
C704 680p B
R705 3.3k 1/2W :RC
R714 8.2k 3W :RS
C706 680p B
R715 3.3k 1/2W :RC
R736 8.2k 3W :RS
C709 680p B
R726 3.3k 1/2W :RC
D706 1SS133
136.9
145.8
Q704 2SA10910
Q703 BF871
5.3
D708 1SS133
141.6
145.5
Q707 2SA10910
Q706 BF871
6.0
D710 1SS133
126.9
131.5
Q709 BF871
Q710 2SA10910
7.2
11.2
11.2
11.2
12V
C717 470p B
D705 1SS133
R706 220
Q702 JC501
4.2
3.6
C718 470p B
D707 1SS133
R716 220
Q705 JC501
4.5
3.9
R712 1k
R720 3.3k
R723 1k
C719 470p B
D709 1SS133
R727 220
Q708 JC501
4.7
4.1
R731 3.3k
R739 1k
TO B BOARD B-72
R711 5.6k
C703 270p
R707 *
R708 47
C705 *
RV703 2.2k 1/10W
R733 680
R717 680
R719 47
C712 270p
RV704 2.2k 1/10W
R732 680
R729 820
R730 47
C710 10 250V
G DRIVE
B DRIVE
12V
B IN
G IN
R IN
GND
AUTO CUTOFF
C-72 6P WHT :S-MICRO
D702 1SS133
D703 1SS133
D704 1SS133
D713 1SS133
D701 MTZJ9.1C
C714 1000 16V
R710 *
C711 47p
R713 *
R737 *
R735 1M :RN
CNV1 10P GRY :BTOB-
TO Ð BOARD Ð-21
CNV2 10P GRY :BTOB-
TO Ð BOARD Ð-22
B-SS4114<AEP>-C..

· WAVEFORMS C BOARD

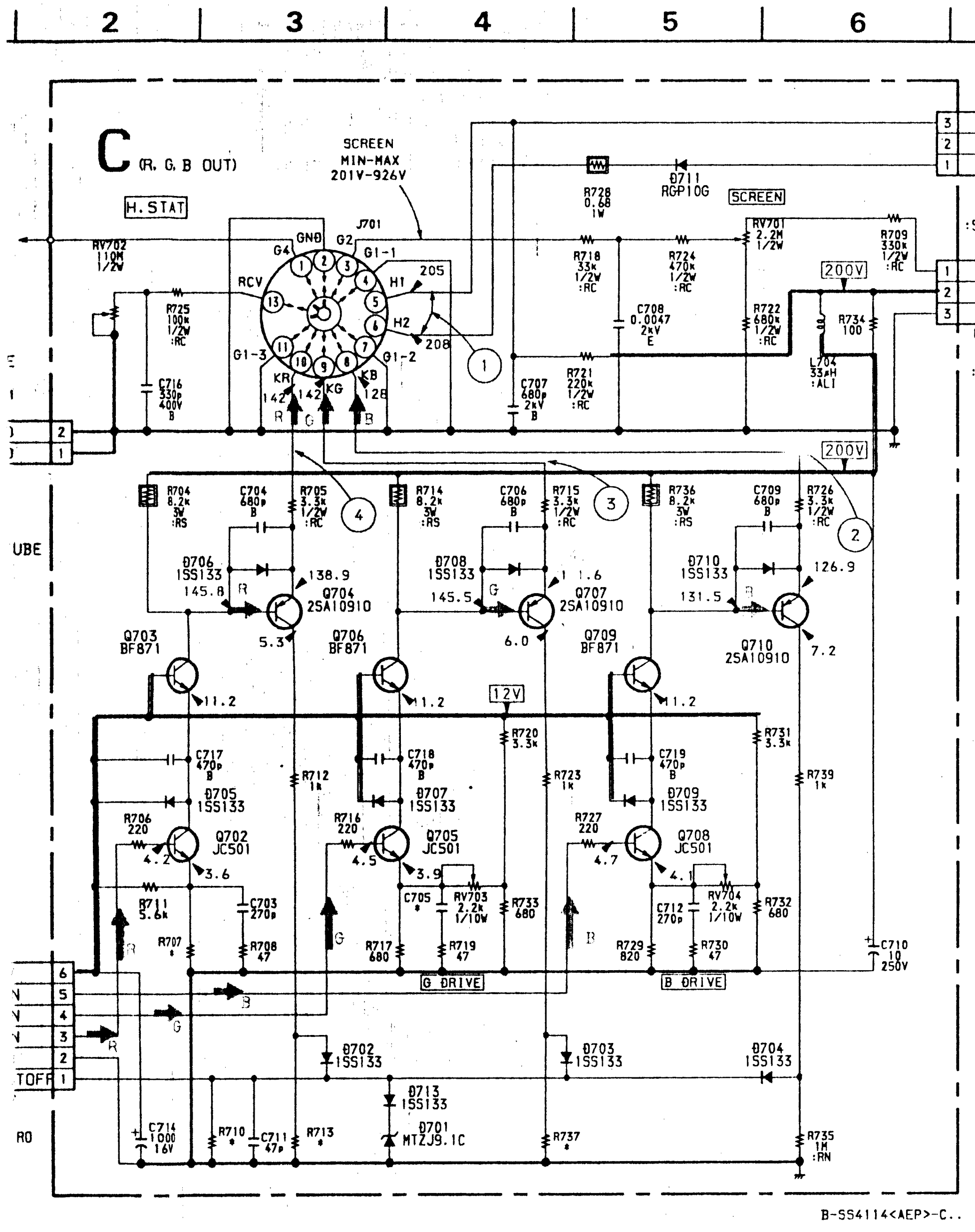

①
25 Vp-p (H)
②
90 Vp-p (H)
③
100Vp-p (H)
④
100Vp-p (H)

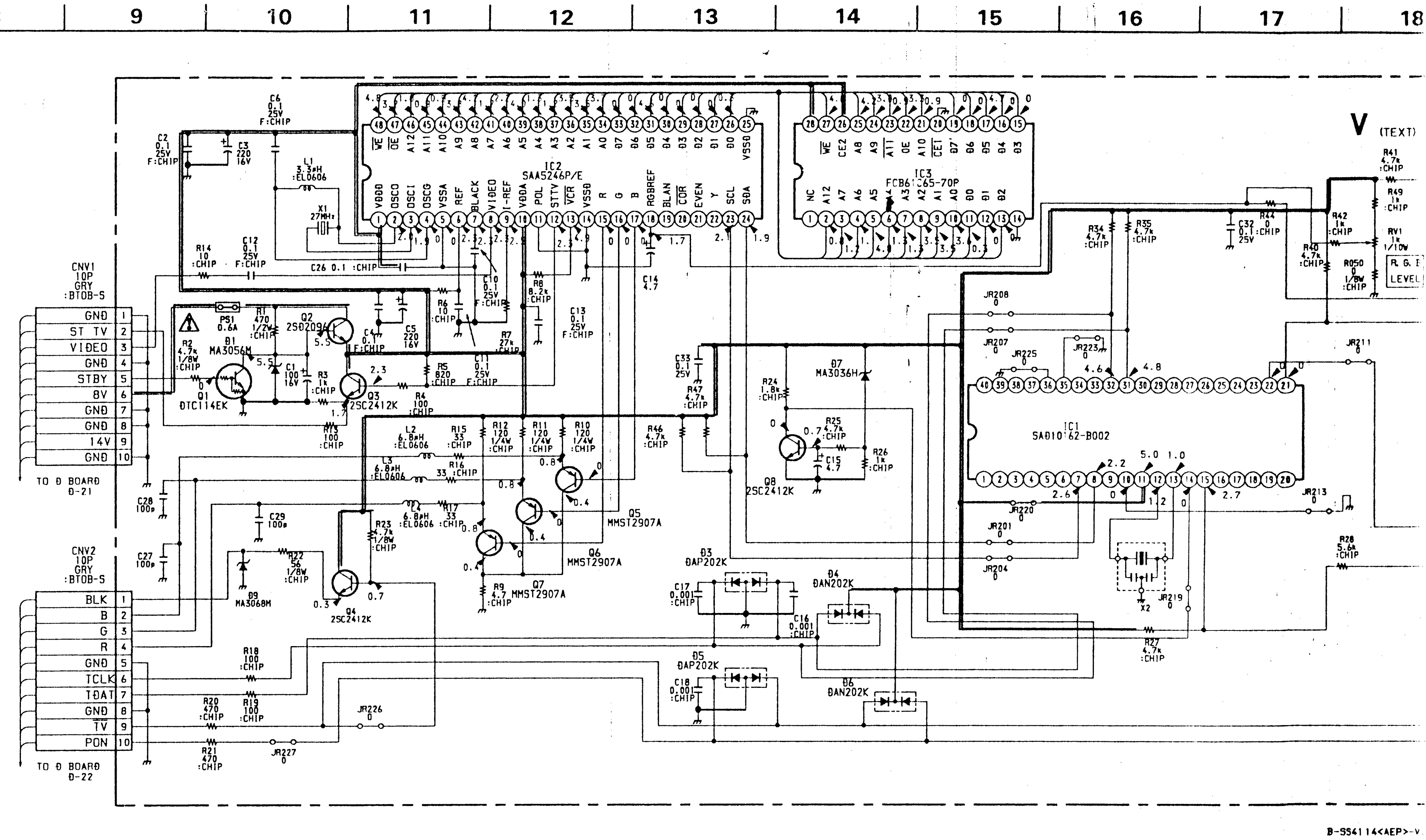
• C BOARD

Q702	JC501	R DRIVE
Q703	BF871	R OUT
Q704	2SA1091O	ACO MEASURING
Q705	JC501	G DRIVE
Q706	BF871	G OUT
Q707	2SA1091O	ACO MEASURING
Q708	JC501	B DRIVE
Q709	BF871	B OUT
Q710	2SA1091O	ACO MEASURING
D701	MTZJ9.1C	PROTECT
D702	1SS133	PROTECT
D703	1SS133	PROTECT
D704	1SS133	PROTECT
D705	1SS133	PROTECT
D706	1SS133	PROTECT
D707	1SS133	PROTECT
D708	1SS133	PROTECT
D709	1SS133	PROTECT
D710	1SS133	PROTECT
D711	RGP10G	HEATING VOLTAGE REC
D713	1SS133	PROTECT

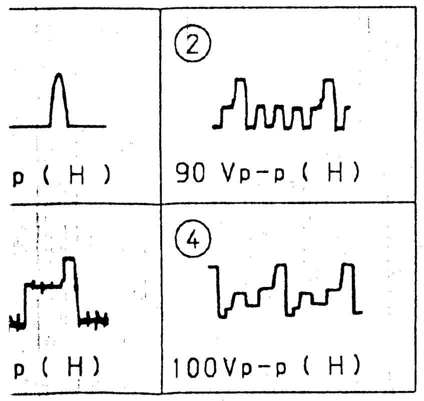
C BOARD

C705
R707
R710
R713
R737


2
3
4
5
6
7
C (R. G. B OUT)
H. STAT
SCREEN MIN-MAX 201V-926V
TO Ɗ BOARD Ɗ-81
TO Ɗ BOARD Ɗ-82
C-81 3P BLK :S-MICRO
C-82 3P WHT :MINI
H1
NC
H2
G2
200V
GND
12V
G DRIVE
B DRIVE
B-SS4114<AEP>-C..


8
9
10
11
12
13
14
15
16
17
18
V (TEXT)
IC2 SAA5246P/E
IC3 FCB61C65-70P
CNV1 10P GRY :BTOB-S
GND
ST TV
VIDEO
GND
STBY
8V
GND
GND
14V
GND
TO Ɗ BOARD Ɗ-21
CNV2 10P GRY :BTOB-S
BLK
B
G
R
GND
TCLK
TDAT
GND
TV
PON
TO Ɗ BOARD Ɗ-22
B-SS4114<AEP>-V

RMS C BOARD


②
p (H)
90 Vp-p (H)
④
p (H)
100Vp-p (H)

• C BOARD

Q702	JC501	R DRIVE
Q703	BF871	R OUT
Q704	2SA1091O	ACO MEASURING
Q705	JC501	G DRIVE
Q706	BF871	G OUT
Q707	2SA1091O	ACO MEASURING
Q708	JC501	B DRIVE
Q709	BF871	B OUT
Q710	2SA1091O	ACO MEASURING
D701	MTZJ9.1C	PROTECT
D702	1SS133	PROTECT
D703	1SS133	PROTECT
D704	1SS133	PROTECT
D705	1SS133	PROTECT
D706	1SS133	PROTECT
D707	1SS133	PROTECT
D708	1SS133	PROTECT
D709	1SS133	PROTECT
D710	1SS133	PROTECT
D711	RGP10G	HEATING VOLTAGE REC
D713	1SS133	PROTECT

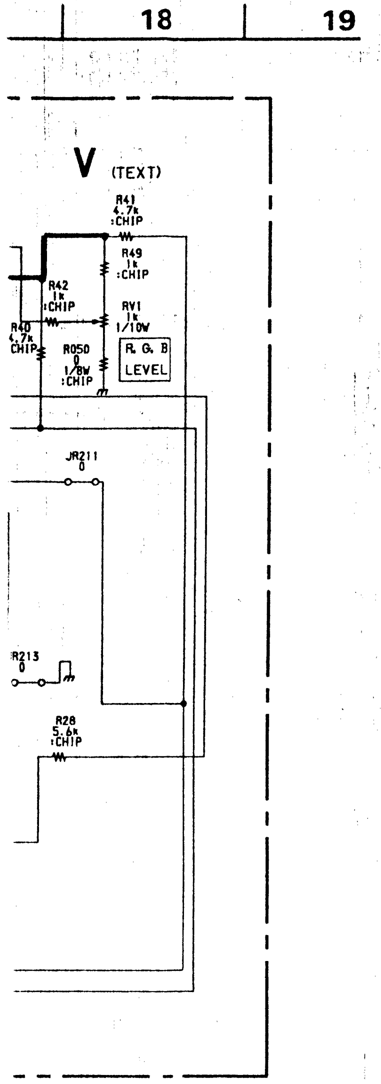
C BOARD * MARK

	21″	25″	29″
C705	180P	220P	220P
R707	430	390	390
R710	100K	68K	68K
R713	160K	120K	120K
R737	390K	820K	470K

– : NOT MOUNTED

• V BOARD

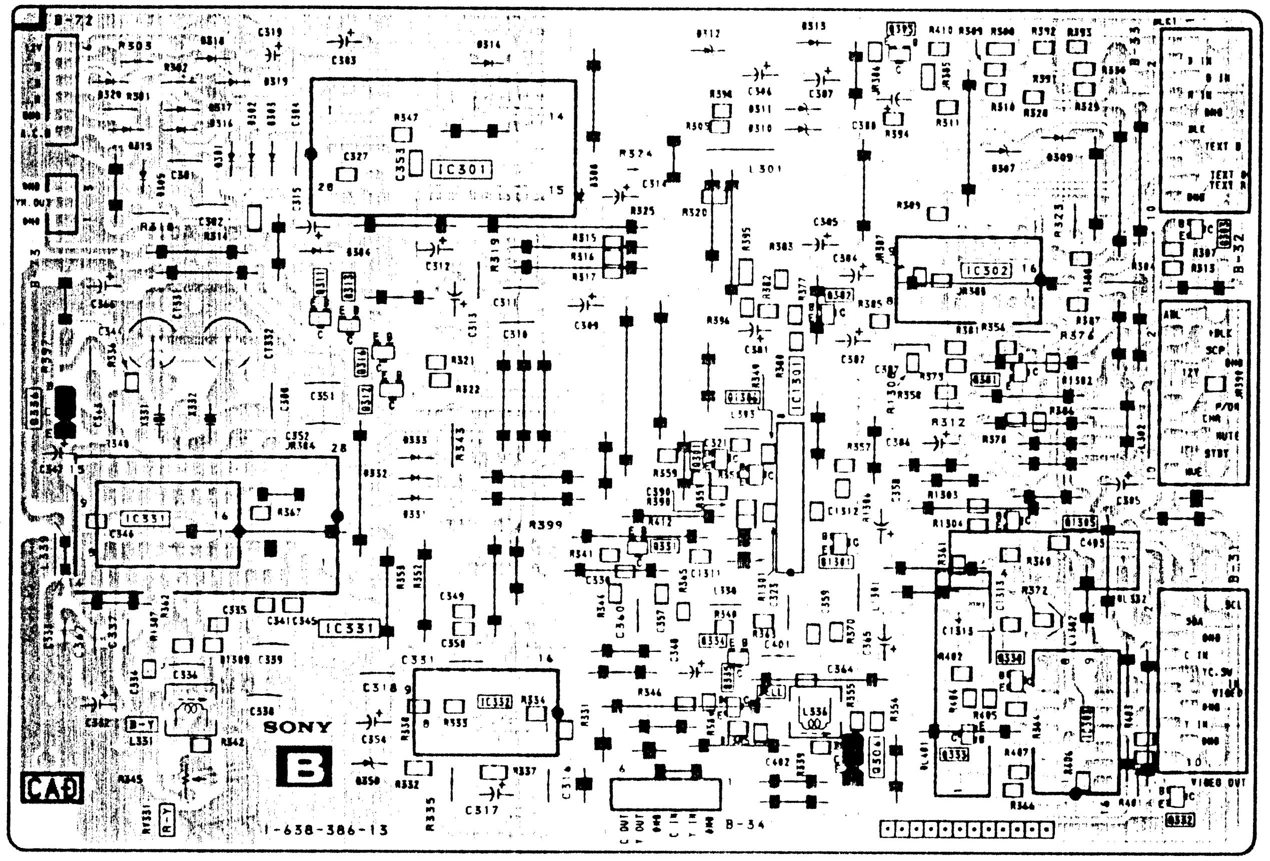
IC1	SDA20162-B002	MICRO-CONT
IC2	SAA5246P/E	IVT
IC3	FCB61C65-70P	STATIC-RAM
Q1	DTC114EK	STAD BY
Q2	2SD2096	5V REG
Q3	2SC2412K	SYNC BUFFER
Q4	2SC2412K	BLK OUT
Q5	MMST2907A	B OUT
Q6	MMST2907A	G OUT
Q7	MMST2907A	R OUT
Q8	2SC2412K	RESET
D1	MA3056M	5V REG
D3	DAP202K	PROTEC
D4	DAN202K	PROTEC
D5	DAP202K	PROTEC
D6	DAN202K	PROTEC
D7	MA3036H	PROTEC
D9	MA3068M	PROTEC


18
19
V (TEXT)
R41 4.7k :CHIP
R49 1k :CHIP
R42 1k :CHIP
RV1 1k 1/10W
R40 4.7k CHIP
R050 0 1/8W :CHIP
R. G. B LEVEL
JR211 0
R213 0
R28 5.6k :CHIP

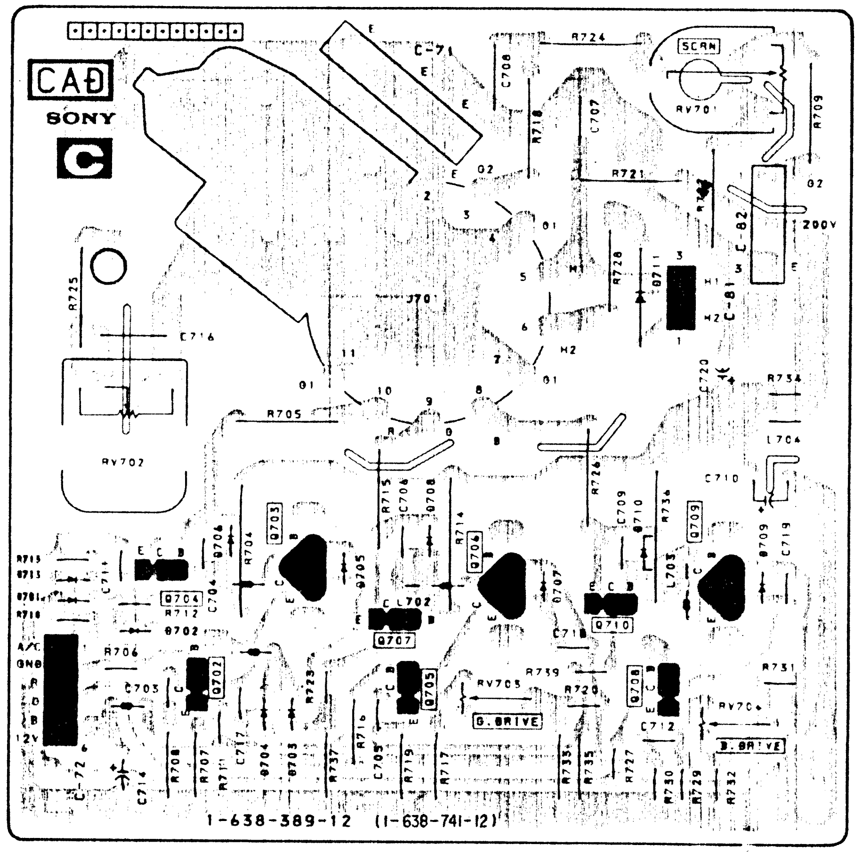
B-S54114<AEP>-V..

B [CHROMA DECODER VM OUT] C [R. G. B OUT] V [TELE TEXT]

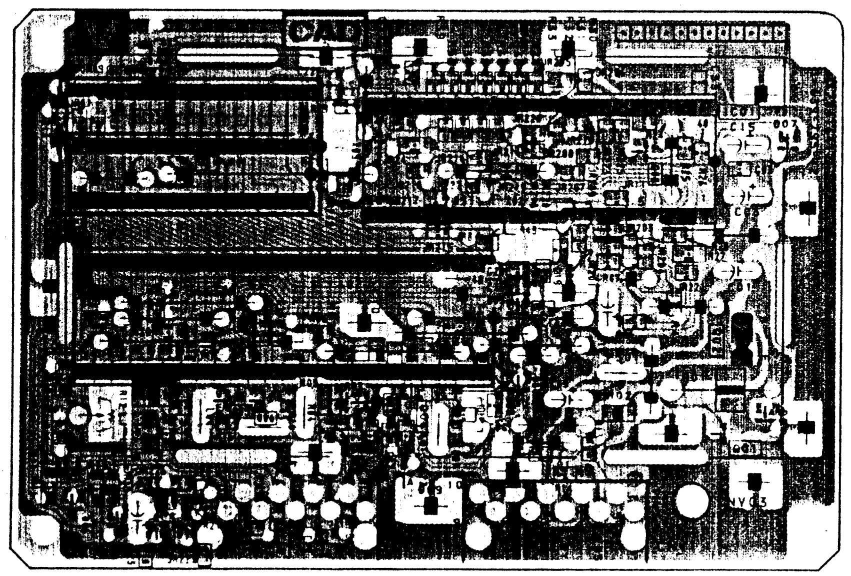
–B Board–


B-72
IC301
IC302
IC331
IC351
IC352
SONY
B
CAD
1-638-386-13
B-34
B-32
B-31
B-Y
R-Y
L301
L331
L336
TEXT B
TEXT R
VIDEO OUT

–C Board–


CAD
SONY
C
C-71
C-72
C-81
C-82
SCRN
RV701
RV702
RV703
RV704
G. DRIVE
B. DRIVE
200V
Q702
Q703
Q704
Q705
Q707
Q708
Q709
Q710
R724
R705
R706
L702
L703
L704
1-638-389-12 (1-638-741-12)

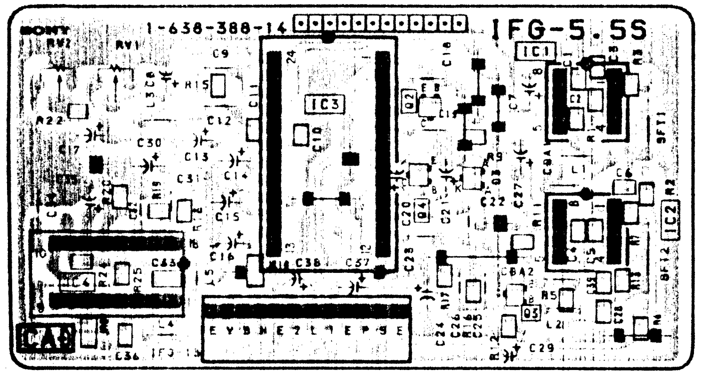
–V Board–



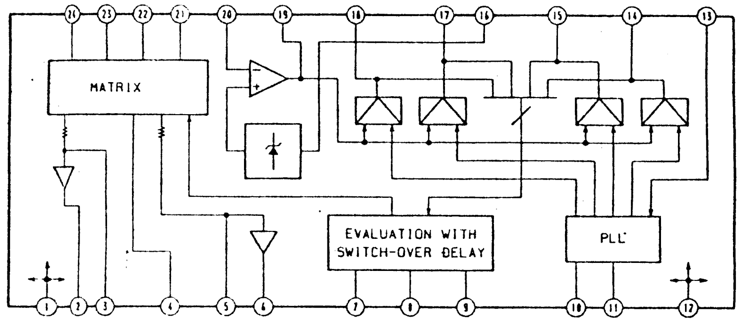
- ▒: Pattern from the side which enables seeing.
- ▓: Pattern of the rear side.

IFG [SIF]

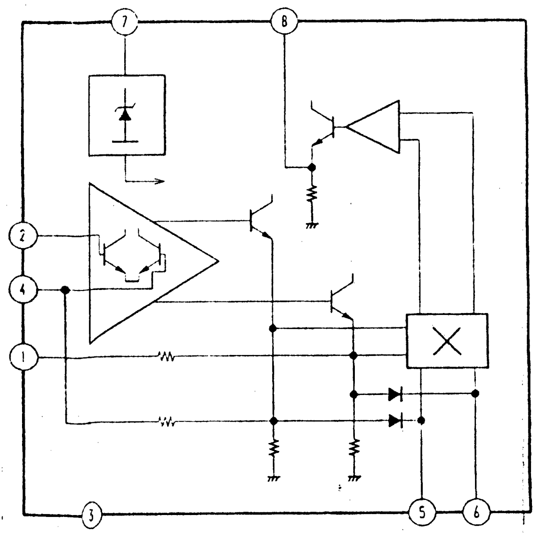
-IFG-5.5S Board-

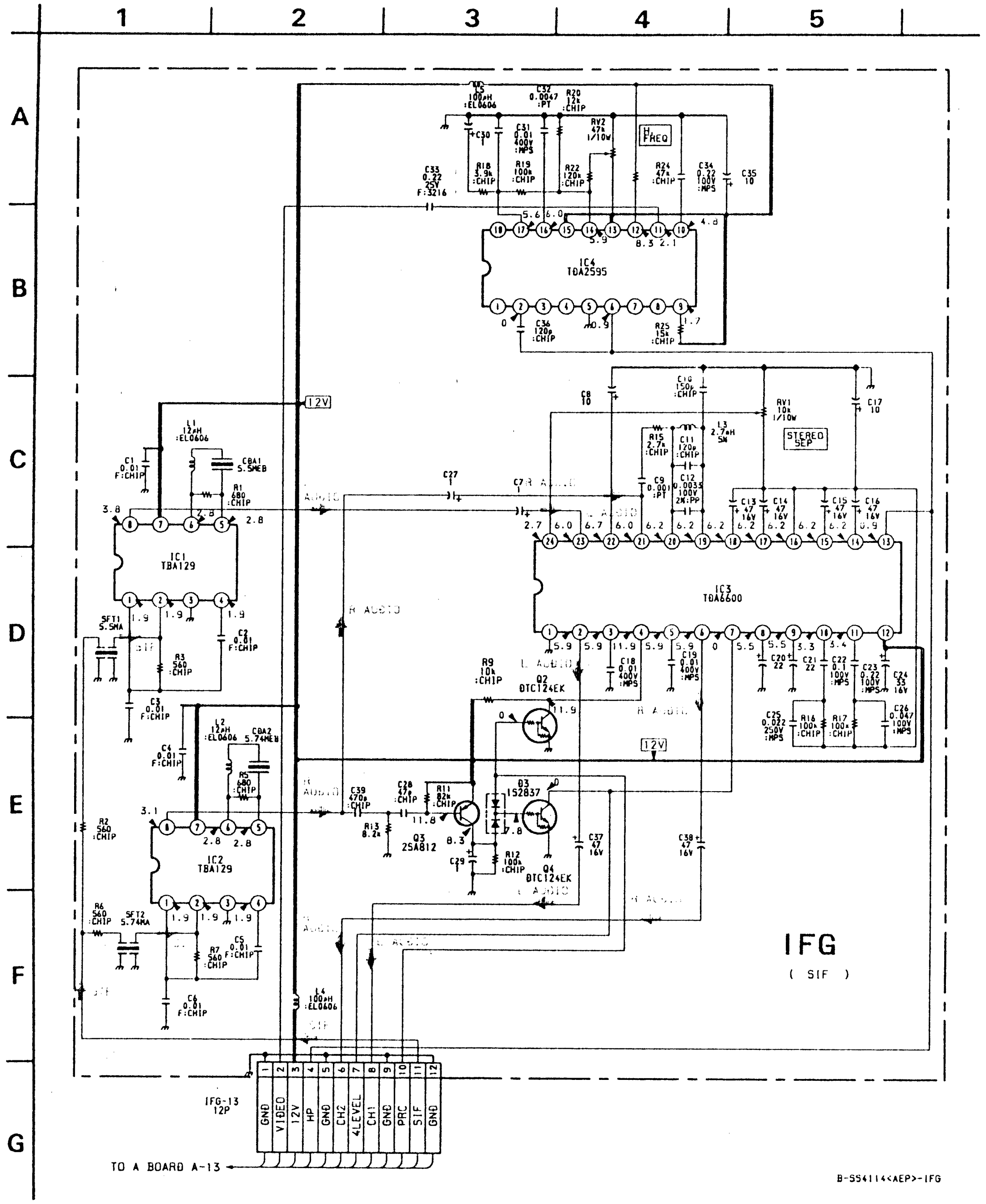

1-638-388-14
IFG-5.5S
IC1
IC2
IC3
IC4
CAB

IFG-5.5S BOARD IC3 TDA6600

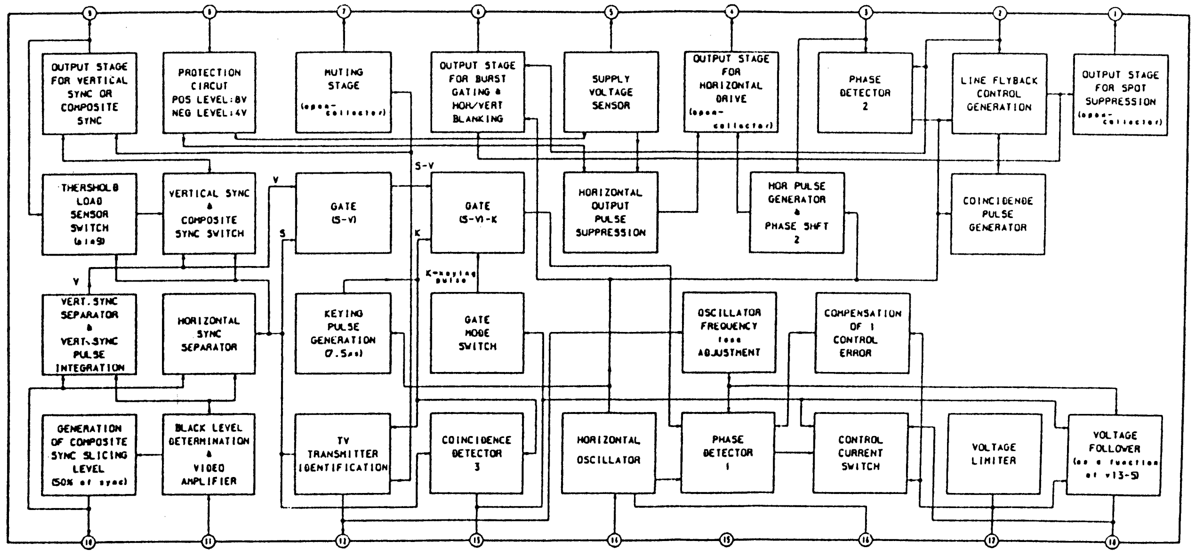

MATRIX
EVALUATION WITH SWITCH-OVER DELAY
PLL

IFG-5.5S BOARD IC1/2 TBA129



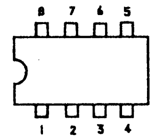

1
2
3
4
5
A
B
C
D
E
F
G
IC1 TBA129
IC2 TBA129
IC3 TDA6600
IC4 TDA2595
FREQ
STEREO SEP
12V
Q2 DTC124EK
Q3 2SA812
Q4 DTC124EK
D3 1S2837
IFG
(SIF)
IFG-13 12P
GND
VIDEO
12V
HP
GND
CH2
4LEVEL
CH1
GND
PRC
SIF
GND
TO A BOARD A-13
B-SS4114<AEP>-IFG

IFG-5.5S BOARD IC4 TDA2595

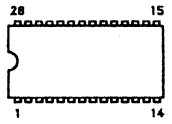

OUTPUT STAGE FOR VERTICAL SYNC OR COMPOSITE SYNC
PROTECTION CIRCUT POS LEVEL:8V NEG LEVEL:4V
MUTING STAGE (open-collector)
OUTPUT STAGE FOR BURST GATING & HOR/VERT BLANKING
SUPPLY VOLTAGE SENSOR
OUTPUT STAGE FOR HORIZONTAL DRIVE (open-collector)
PHASE DETECTOR 2
LINE FLYBACK CONTROL GENERATION
OUTPUT STAGE FOR SPOT SUPPRESSION (open-collector)
THERSHOLD LOAD SENSOR SWITCH
VERTICAL SYNC & COMPOSITE SYNC SWITCH
V
S
GATE (S-V)
S-V
K
GATE (S-V)-K
HORIZONTAL OUTPUT PULSE SUPPRESSION
HOR PULSE GENERATOR & PHASE SHFT 2
COINCIDENCE PULSE GENERATOR
V
VERT. SYNC SEPARATOR & VERT. SYNC PULSE INTEGRATION
HORIZONTAL SYNC SEPARATOR
KEYING PULSE GENERATION (7.5µs)
K-keying pulse
GATE MODE SWITCH
OSCILLATOR FREQUENCY ADJUSTMENT
COMPENSATION OF 1 CONTROL ERROR
GENERATION OF COMPOSITE SYNC SLICING LEVEL (50% of sync)
BLACK LEVEL DETERMINATION & VIDEO AMPLIFIER
TV TRANSMITTER IDENTIFICATION
COINCIDENCE DETECTOR 3
HORIZONTAL OSCILLATOR
PHASE DETECTOR 1
CONTROL CURRENT SWITCH
VOLTAGE LIMITER
VOLTAGE FOLLOWER (as a function of v13-5)

5-4. SEMICONDUCTORS

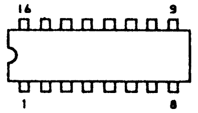
BA4558
NE5532P
RC4558P
SDA2546
TBA129
TDA1543
TEA2014A
TEA2031A



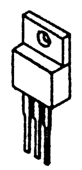
CXA1114P
CXK5864BP-10L
FCB61C65-70P
MAB8461P-W208
SAA7280P/M3
TC5565APL-15L
TDA4580-V7
TDA4650-V4
TDA6200
TEA2028B



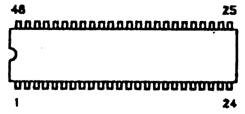
HD14053BFP
MC14051BCP
PCF8574
TDA4660V2
TDA8442-N3
TEA2260
µ PD4053BC



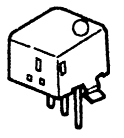
LM7812CT
TEA7605



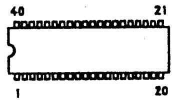
SAA5246P/E/M4A
SAA5246P/E
SAA5246P/H



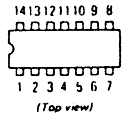
SBX1610-11



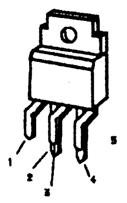
SDA20560-A012



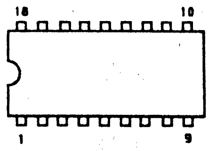
SN74LS02N


14 13 12 11 10 9 8
1 2 3 4 5 6 7
(Top view)

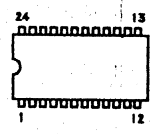
TDA2050



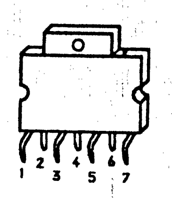
TDA2595-V9



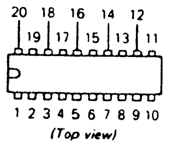
TDA6600-2



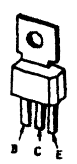
TDA8170



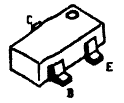
TDA8732


20 18 16 14 12
19 17 15 13 11
1 2 3 4 5 6 7 8 9 10
(Top view)

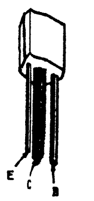
BF871



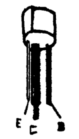
DTA144EK
DTC114EK
DTC124EK
DTC144EK
2SA1162-G
2SB1295-UL6
2SC1623-L5L6



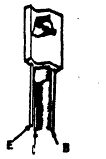
DTC144ES



2SA1091-0
2SD789-34

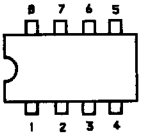


2SA1220A-P
2SC2688-LK

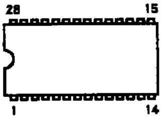


5-4. SEMICONDUCTORS

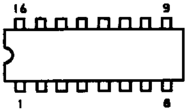
BA4558
NE5532P
RC4558P
SDA2546
TBA129
TDA1543
TEA2014A
TEA2031A



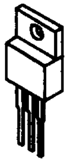
CXA1114P
CXK5864BP-10L
FCB61C65-70P
MAB8461P-W208
SAA7280P/M3
TC5565APL-15L
TDA4580-V7
TDA4650-V4
TDA6200
TEA2028B



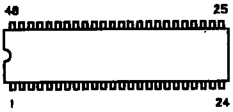
HD14053BFP
MC14051BCP
PCF8574
TDA4660V2
TDA8442-N3
TEA2260
μ PD4053BC



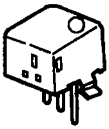
LM7812CT
TEA7605



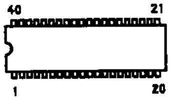
SAA5246P/E/M4A
SAA5246P/E
SAA5246P/H



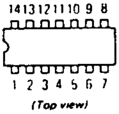
SBX1610-11



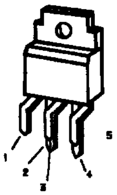
SDA20560-A012



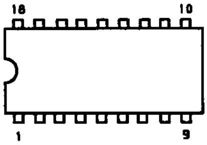
SN74LS02N


14 13 12 11 10 9 8
1 2 3 4 5 6 7
(Top view)

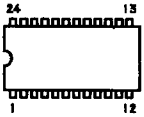
TDA2050



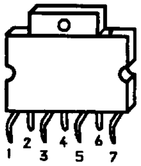
TDA2595-V9



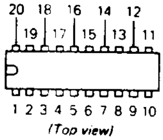
TDA6600-2



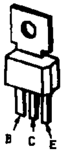
TDA8170



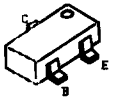
TDA8732


20 18 16 14 12
19 17 15 13 11
1 2 3 4 5 6 7 8 9 10
(Top view)

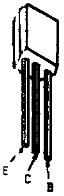
BF871



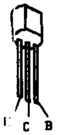
DTA144EK
DTC114EK
DTC124EK
DTC144EK
2SA1162-G
2SB1295-UL6
2SC1623-L5L6



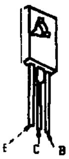
DTC144ES



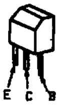
2SA1091-0
2SD789-34



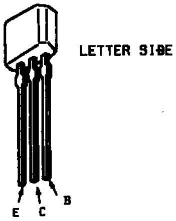
2SA1220A-P
2SC2688-LK



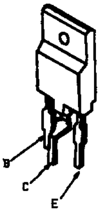
2SB734-34
2SD773-34
2SD774-34



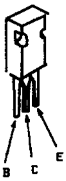
2SC2785-HFE


LETTER SIDE
E
C
B

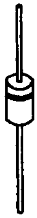
2SD1548-LB
2SD1941-06



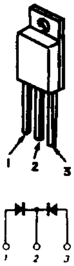
2SD2096-EF



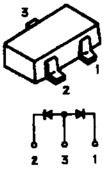
BB405B
BB809
EGP20G
ERC06-15S
HZS11NB3TD
RU-3AM



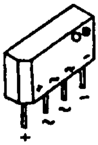
CTU-12S



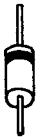
DAP202K



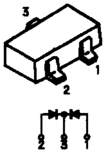
D4SB60L-F



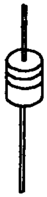
ERD29-08J



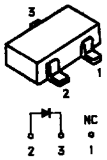
MA152WK



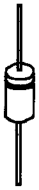
MTZJ-13B
MTZJ-15A
MTZJ-3.9B
MTZJ-33A
MTZJ-36D
MTZN-10C
RD11ES-B3
RD5.6ESB2
RD6.2ES-B2
RD6.8ESB2
RD7.5ESB2
RD9.1ESB3
UZ-4.7BSC
1SS119



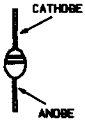
RD3.6M-B2
RD5.6M-B2
RD6.8M-B2



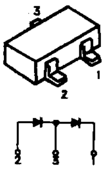
RGP02-17



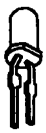
U05G


CATHODE
ANODE

1SS226



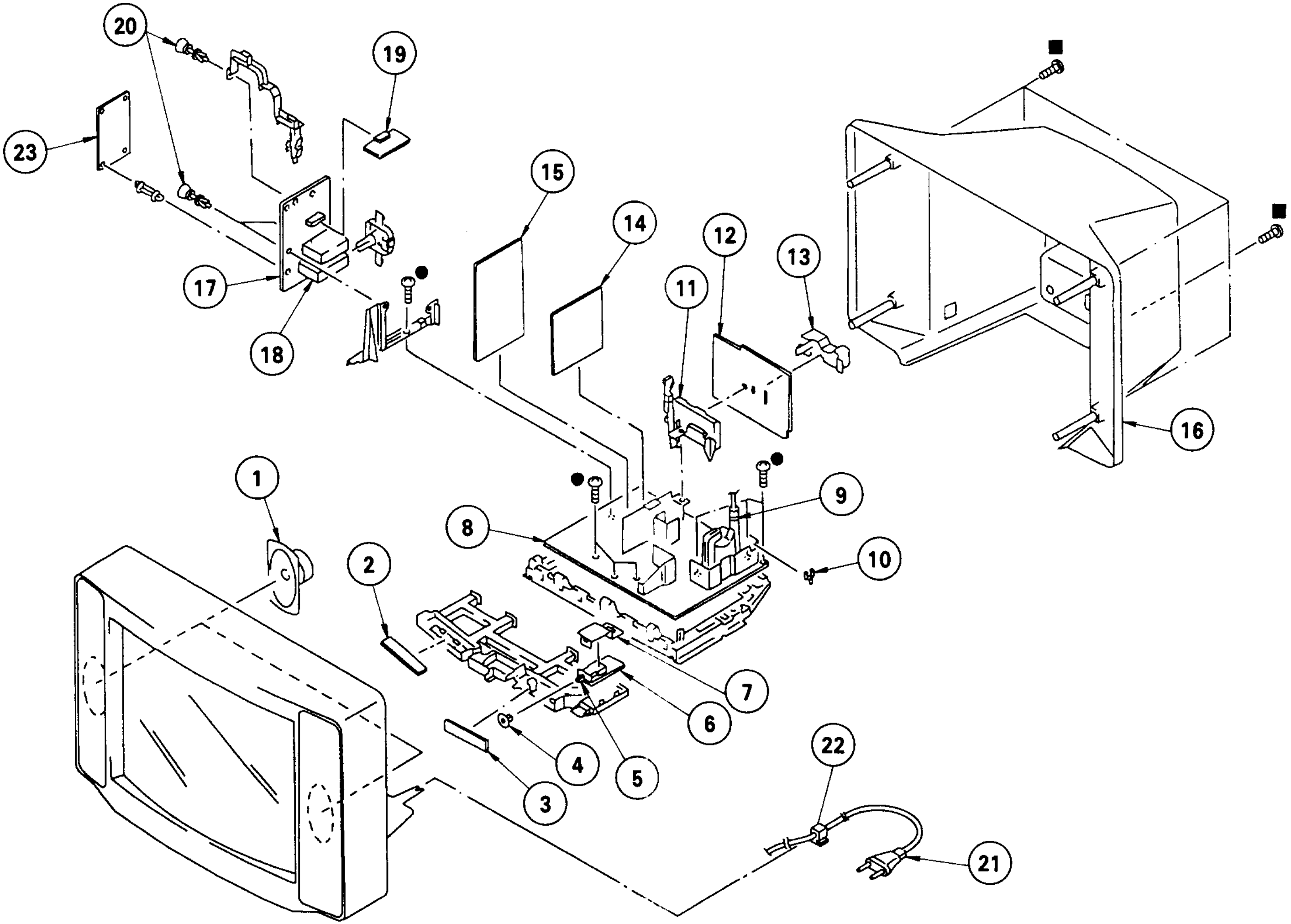
LD-201VR



6-1. CHASSIS (KV-C2163E)

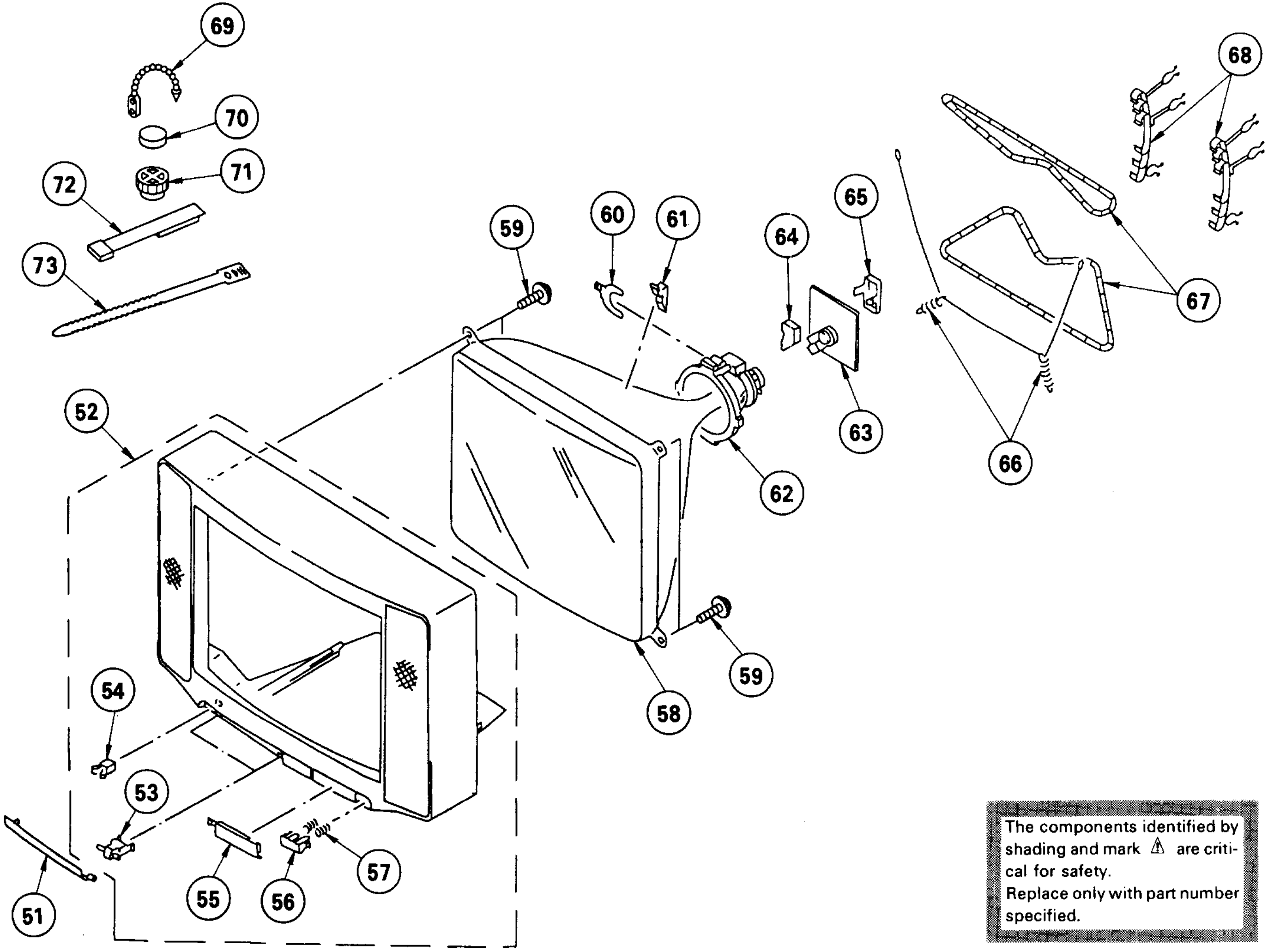
● : BVTP 3 × 12 7-685-648-79

■ : BVTP 4 × 16 7-685-663-79



20
19
23
15
14
12
13
11
17
18
16
1
8
9
10
2
7
6
4
5
3
22
21
●
■

6-2. PICTURE TUBE (KV-C2163E)

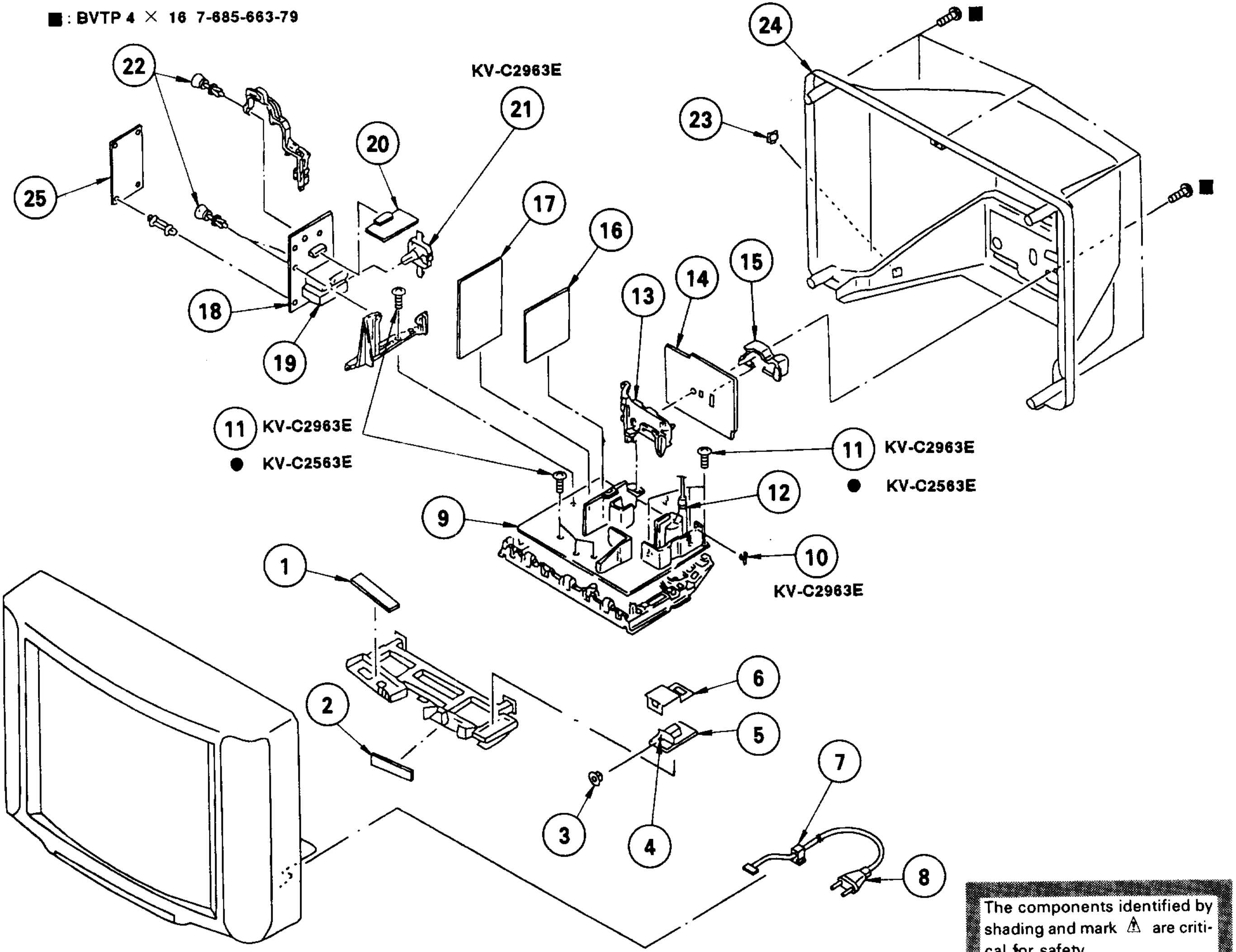

69
70
71
72
73
59
60
61
64
65
68
67
66
63
62
52
58
59
54
53
51
55
56
57

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

6-3. CHASSIS (KV-C2563E/C2963E)

● : BVTP 3 × 12 7-685-648-79

■ : BVTP 4 × 16 7-685-663-79

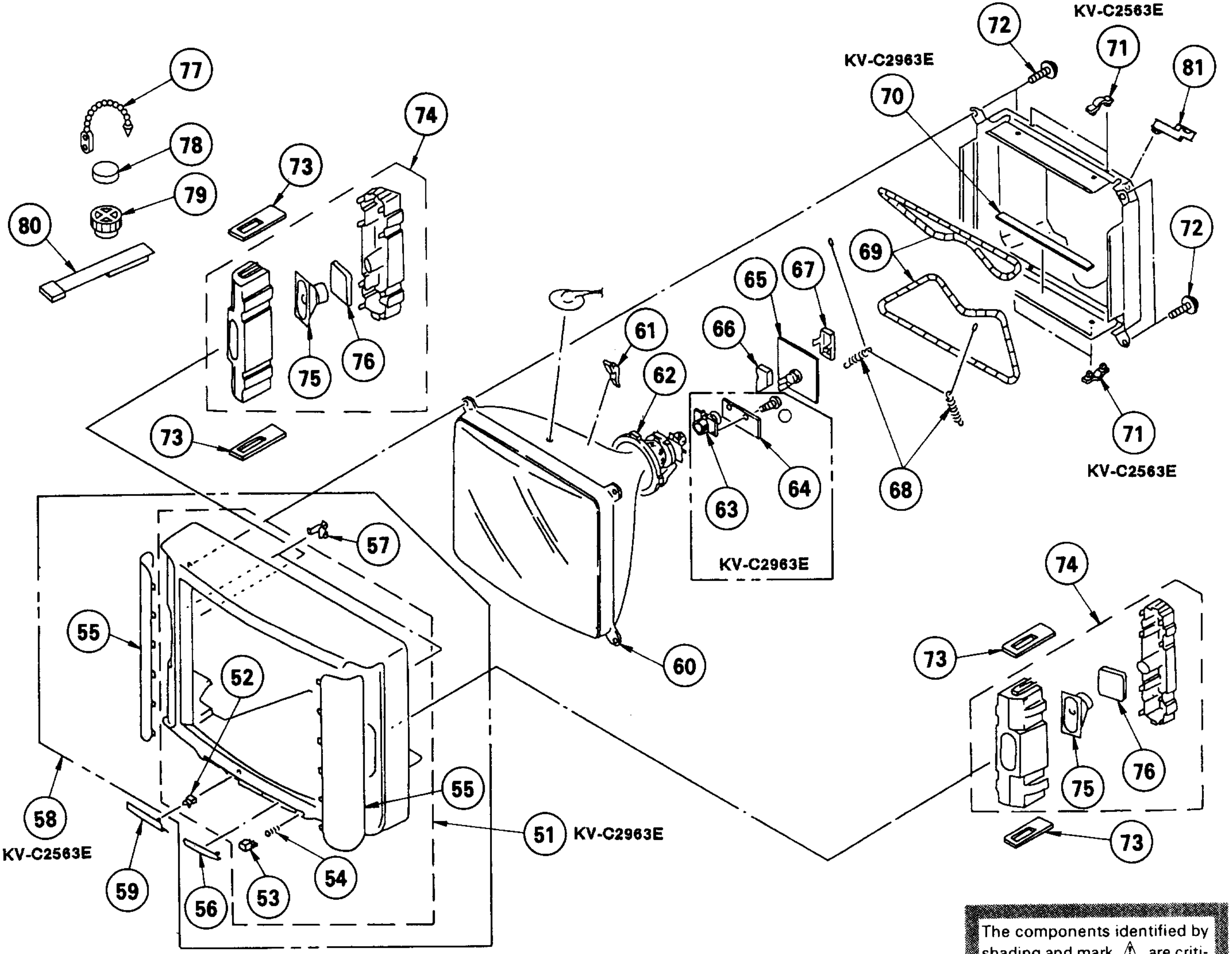


24
■
22
KV-C2963E
21
23
■
20
25
17
16
15
14
13
18
19
11 KV-C2963E
● KV-C2563E
11 KV-C2963E
● KV-C2563E
12
9
10
KV-C2963E
1
6
2
5
7
3
4
8

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

6-4. PICTURE TUBE (KV-C2563E/C2963E)

○ : BVTP 3 × 8 7-685-646-79


77
78
79
80
74
73
75
76
73
72
KV-C2563E
71
81
KV-C2963E
70
72
69
65
67
66
61
62
63
64
68
KV-C2963E
71
KV-C2563E
57
55
52
55
60
74
73
75
76
73
58
KV-C2563E
59
56
53
54
51
KV-C2963E

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.